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XXI.—A BIOLOGIC STUDY OF LATENCY IN SYPHILIS *

GENERAL CONSIDERATIONS: LATENCY—A BIOLOGIC REACTION

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To give a clear idea of the meaning of latency, we must point to a few biologic facts in relation to the invasive stage of syphilis. After a given infection, when the virus is deposited on an abraded surface, the organisms begin to proliferate and are wafted quickly into the general circulation, as has been actually demonstrated by Brown and Pearce [1] and one of us.[2] The organisms continue to increase at the site of the lesion and probably within the body until the period of multiple systemic localization occurs. When the spirochetes are planted in the tissues and organs of the body, colonies are formed and through their growth and life cycle induce certain biochemical changes which may be exhibited in all organs; and, no matter where located, seem to stimulate the same cellular reaction. They arrive by way of the blood stream in these various organs and especially in the skin where they continue proliferation. Their presence induces at these points of colonization the formation of lymphoid cells, plasma cells and new connective-tissue cells and sometimes giant cells (a papule), but the organism exerts little attraction for the polymorphonuclear leukocytes. The new-formed cells have not the power of reorganization and have a tendency toward resorption and disin-

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1. Brown, Wade H., and Pearce, Louise: A Note on the Dissemination of Spirochaeta Pallida from the Primary Focus of Infection, Arch. Dermat. & Syph. **2**:470 (Oct.) 1920.

2. Eberson, F.: The Dissemination of Spirochaeta Pallida in Experimental Syphilis, Arch. Dermat. & Syph. **3**:111 (Feb.) 1921.

tegration, but during their formation, or in conjunction with their formation there must be something manufactured in situ—a biochemical reaction which has a lethal or repressant effect on most of the organisms at points of localization, especially in the skin; for there is a tendency after a certain time, without treatment, for the disappearance of the eruption; that is, the roseola or papules tend to disappear or fade, sometimes leaving slight pigment spots, while multiform lesions may spring up at other points. Therefore, one must accept as a fundamental, the fact that the spirochetes in the early lesions are slowly destroyed in situ, eliminated, or their pathogenic action repressed by something which is formed at the point of colonization.

Involution in situ is the rule and the natural clinical course of all early lesions of syphilis. The logical explanation of this phenomenon must be based on the assumption that some antibody or immunizing substance is formed in the lesions which slowly destroys or represses the spirochetes. This antibody or inhibitory agent must be manufactured at local sites of inoculation or colony formation, in which event it may be carried with the lymph stream, absorbed into the general circulation and may exist in the blood stream in quantities sufficient to have a distinct effect on other colonies in the body. Although we must admit at this time that experimental investigation has not as yet revealed such a substance, from the clinical, theoretical and experimental standpoint, it must exist either at local sites or in the blood stream. The analysis of the clinical course and symptoms of the disease, together with histologic study, establish the fact that in all probability during the invasive eruptive stage of the disease such a substance is formed and has a deterrent effect on the organism of syphilis.

Through the action of the chemical principle elaborated by the colony during the invasive stage, the spirochetes seem to be repressed and active objective and subjective symptoms cease after a time in the large majority of instances. In a few cases, however, relapsing cutaneous lesions may persist or cerebrospinal or vascular syphilis of an acute nature may occur, but we must admit that usually after a variable time, the pathogenic action of the spirochetes seems to be diminished, and the organisms remain in a more or less dormant or latent condition in the system. We must admit this hypothesis, in view of the fact that patients harboring latent parasites may have active syphilis of the viscera without clinical symptoms and that *Spirochaetae pallidae* may be present in a host without clinical manifestations, in which state they may exist for many years without interfering with health. Therefore, we must recognize the presence of weakly pathogenic *Spirochaetae pallidae* in these numerous cases, in which they may inhabit the body for many years and yet not pro-

duce objective or subjective clinical symptoms. Such a relationship between the host and parasite, we must term latency. Just what latency means in this instance, has not been demonstrated. The organisms may exist in various organs and tissues of the body living in a state aptly described by Warthin [3] as "commensalism," and, as stated by one of us,[4] they may be found in the lymph glands, sexual glands, or other tissues of the body. Wherever the resting place of the spirochetes may be, it probably appears in the blood stream at stated periods, and this is an important pathologic fact elucidating the late phases of the disease.

Many parasitic organisms become latent in an animal body. In fact, probably most of the diseases through which human beings pass in the course of a lifetime become latent, such as tuberculosis, smallpox (in the mild cases artificially produced by vaccine virus), certain streptococcal infections, malaria, trypanosomiasis, etc. Latency in syphilis is probably of even greater importance and runs quite a different clinical course from that of tuberculosis or any other of the diseases which frequently become latent.

It is highly probable that latency means a balance between the offensive forces of the organism and the defensive mechanism of the body cells. It might also mean that through long habitation in the body of the host, the cells of the host become accustomed to the presence of the parasite and no longer react to it by forming pathologic lesions.[5]

The truest type of latency is best illustrated clinically in the so-called Colles women, who, although bearing syphilitic children and themselves presenting a positive Wassermann reaction, in a large majority of cases do not show any clinical symptoms of syphilis. Even though one may appreciate the difficulty of demonstrating all the clinical effects that may be produced by *Spirochaeta pallida* in a given host, these women are the best examples of latency. This balance between the spirochetes and the cells of the host may be upset or lose its nice equilibrium in consequence of factors such as localized traumas of all kinds, including nonspecific pathologic change in some organs. A striking analogue may be seen in the instance of mouse typhoid, for example, in which the animals carry the *B. murisepticus* without any manifestations, and yet, following a sublethal injection with pneumococcus organisms, will succumb almost invariably to typhoid infection. The organisms of malaria and piroplasmosis multiply in the blood stream, but their presence is not due to their escape from organs such

3. Personal communication.

4. Engman, M. F.: The Pathogenesis of Placental Syphilis: A Preliminary Report, J. A. M. A. **58**:1415 (May 11) 1912.

5. Levaditi: Ztschr. f. Immunitätsforsch. Ref. **2**:277, 1910.

as the lymph gland and spleen, yet malaria of the chronic type is known to undergo a resting stage in the spleen and bone marrow for many years without producing clinical manifestation. However, there is a great difference between such true parasites and the organism of syphilis which is never found in large numbers in the circulating blood and then not very frequently even in instances in which the disease is active.

From clinical and experimental studies it seems that true latency in syphilis and in other diseases is attained only through a general invasion of the tissue cells of the host by the parasite, as a result of which immunizing substances either produce a change in the pathogenic action of the parasite or increase the defensive forces of the cells of the host. This may be illustrated by the citation of an instance.

A physician was accidentally inoculated with syphilis in the outer canthus of the eye, the initial lesion occurring on the conjunctiva. The organisms were found, and arsphenamin and mercury treatment was at once given with sufficient intensity to prevent occurrence of any symptoms of colonization at that time. Two intensive courses of arsphenamin and mercury were given which resulted in a series of negative Wassermann reactions. The physician carelessly ceased taking treatment for some months and returned in the course of a year after his initial lesion with a diffuse maculopapular eruption of syphilis without any symptoms of a new infection. The Wassermann reaction at this time was positive, and he had all the symptoms of a new invasion.

What probably had occurred in this case was: The early treatment had stopped or aborted the complete invasive stage of the disease and colonization, but had not entirely sterilized the patient of spirochetes. After the cessation of treatment, the remaining organisms slowly proliferated in the foci where they were left, were carried into the tributary lymph stream and on into the general blood stream, and thence to various parts of the body, including the skin, where colonization occurred with the consequent formation of the eruption. The virus after the initial lesion did not assume that biologic condition known as latency. This was prevented by treatment. The strain did not experience the influence of the body cells and subsequently invaded the host later from hidden foci. As soon as sufficient numbers of the parasite had been formed to reach the general blood stream, systemic invasion took place and the tissue cells of his body reacted to the invasion in the same manner as if the chancre had occurred only some weeks previous to the eruption. In fact, as far as the eruption was concerned, the second or more successful foci acted as initial lesions. Therefore for the state of latency to obtain, it is probably necessary for a general or more or less widespread cellular reaction to occur.

In support of this hypothesis may be cited experimental studies of Brown and Pearce [1] on the effects of suppression of reaction to syphilitic infection in rabbits. In those cases of syphilis in which the infective stage does not present an abundant cutaneous efflorescence, it is probable that a true latency is never developed and it is just in such cases that we later have the occurrence of tabes and paresis.

The surface of the skin is larger than the surface of any other tissue of the body. Therefore, when an invasion of spirochetes occurs so that the skin is well inhabited by disseminated colonies, it is highly probable that a larger amount of the immunizing substance is manufactured than in those cases in which the skin is not diffusely involved. It is obvious, for the reason cited in the foregoing, that the large surface of the skin would manufacture more immunizing bodies than any of the other tissues of the body which do not react so vigorously to the spirochetes. In other words, the skin in this disease and probably in other eruptive diseases is the source of those bodies which influence the repression of the organisms causing the disease. At any rate, clinical experience points to the fact that those cases which have presented in their clinical course an uncomplicated widespread cutaneous eruption are less severe as regards life and general health than those which do not run such a cycle. In fact, the trend of late experimental research seems to substantiate this view.[6]

From certain evidence produced by spirochetes obtained from cerebrospinal syphilis, it seems highly probable that these types of infection may not be due in any instance to a "latent" parasite. The subsequent cerebrospinal disturbance known as paresis and tabes is produced initially by the invasion of the nervous system early in the disease. It is evident from previous considerations that these spirochetes which are implanted in the nervous tissues and therefore not readily accessible to antibodies which might be elaborated in other parts of the body, such as the skin particularly, would be uninfluenced by these cell-formed products and therefore not subject to those influences which might tend to produce latency.

PREVALENCE OF LATENT SYPHILIS

The importance of the latent syphilitic patient as a carrier in any community cannot be estimated. Although voluminous studies have been reported over a period of many years on the subject of syphilis from practically all angles, little work has been done on the study of the latent syphilitic patient. An active infectious syphilitic patient is manifestly a source of contagion and is easily recognized as such. The problem by its frank nature becomes relatively a simple one. On the

6. J. Exper. Med. **32**:473, 1920. Brown and Pearce (Footnote 1).

other hand, the problem of the latent syphilitic patient is not to be met so easily. The study of this phase of the disease presents many angles, the most important of which is the relationship to the community and to his offspring of one who harbors live parasites in a latent form.

The prevalence of latent syphilis may be estimated by a Wassermann reaction made on a large series of patients. A surprisingly large number of persons, apparently free from the disease and with no history of infection, are found to react positively. A careful analysis of the family history often points definitely to the disease in a latent form. That the incidence is relatively high is indicated by figures reported from different clinics. Our own experience showed that 15 per cent. of the total number of syphilitic patients who were treated in the clinic were true latent syphilitic patients. This is undoubtedly a much lower figure than we ought to expect in any group taken at random. A typical example is seen in a study of 586 cases made by McNeill[7] among the southern negroes (Table 1).

TABLE 1.—Occurrence of Syphilis in Southern Negroes*

	No. of Cases	Positive Wassermann Reactions, Per Cent.
Apparently healthy	200	24
Children	52	95
Patients with pulmonary tuberculosis	60	23
Patients with typhoid fever	13	22
Patients with malaria	7	12
Patients with dysentery	12	20
Patients with pneumonia	30	30
Patients with pellagra	22	13
Patients with cancer	17	12
Patients with arteriosclerosis	18	23
Patients with chronic interstitial nephritis	4	25
Patients with diffuse nephritis	60	48
Patients with paralysis	34	50
Patients with myocarditis	21	40
Patients with cirrhosis of the liver	6	60
Patients with bone or joint pains	30	80

* This table has been abbreviated somewhat as compared with the original article by McNeill.

Day and McNitt,[8] in a study of 2,925 patients admitted to the Barnes Hospital in Saint Louis, found 15 per cent. of the number clinically free from syphilis and giving a strongly positive Wassermann reaction.

7. McNeill, H. L.: Syphilis in the Southern Negro, J. A. M. A. **67**:1001 (Sept. 30) 1916.

8. Day and McNitt: Am. J. Syph. **3**:595, 1919.

A more striking demonstration of the prevalence of latent syphilis has been offered through pathologic studies, especially those reported by Warthin.[9] Spirochetes and active lesions were found by him in most of the cases in which the heart, aorta, testicle, pancreas, spleen and liver were examined. The lesion consisted of a low grade chronic infection with lymphocytic infiltration. Necropsy examinations were made on treated, "cured" and undetermined cases of syphilis in which the Wassermann reaction was usually negative and in which there were no symptoms. Although the spirochetes were few in number in latent syphilitic patients (twenty-five cases) the findings are suggestive and, if confirmed, are of inestimable importance. It will be necessary, however, to supplement this purely miscroscopic study with a complete investigation of the infectivity of tissues obtained from similar groups of cases. This work is being carried on as a part of our study and will be the subject of another paper.

INFECTIVITY OF BLOOD IN SYPHILIS

The blood in cases of florid syphilis appears to be infectious to some extent. Positive inoculations have been reported from different sources, but it appears that the spirochetes are never numerous and the danger attending contact with patients' blood in the making of Wassermann tests or in gynecologic work is probably exaggerated.

Some of the earliest experiments were performed on people with blood from syphilitic patients in the macular, papular or roseolar stage. Scarification with such material resulted in definite lesions of syphilis. As early as 1851, Waller[10] reported two successful transmissions. This was followed in 1856 by the report of "Pfalzer Anonymus"[11] with three positive experiments out of six. Lindwurm and Schulze,[12] the latter using the iris of rabbits for his studies, confirmed these results. Spirochetes have been demonstrated microscopically in the blood by Flügge,[13] Noeggerath and Stähelin,[14] Raubitschek,[15] Sobernheim and Tomasczewski,[16] (primary syphilis preceding the appearance of an eruption); Wolters,[17] Zabolotny[18] and others.

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9. Warthin: Am. J. M. Sc. **152**:508, 1916.
10. Waller: Prag. Vierteljahrschr. f. prakt. Heilkunde **29**:112, 1851; ibid. **31**:51, 1851.
11. Canstatts Jahresber. f. d. ges. Med. **4**:336, 1856.
12. Lindwurm and Schulze: Würzburger med. Ztschr. **3**:143, 1862.
13. Flügge: Deutsch. med. Wchnschr. **31**:1755, 1905.
14. Noeggerath and Stähelin: München. med. Wchnschr. **52**:1481, 1905.
15. Raubitschek: Wien. klin. Wchnschr. **18**:752, 1905.
16. Sobernheim and Tomasczewski: München. med. Wchnschr. **52**:1857, 1905.
17. Wolters: Med. Klin. **1**:963, 1905.
18. Zabolotny: Zentralbl. f. Bakteriol. Ref. **38**:13, 1905.

The most important literature on the subject of infectivity of syphilitic blood shows a surprisingly small amount of experimental study of the problem over a period of ten years (Table 2).

TABLE 2.—TABULATION OF INOCULATION EXPERIMENTS WITH BLOOD FROM SYPHILITIC PATIENTS

	Source	No. of Specimens	Positive Results
E. Hoffman, 1906	Secondary syphilis	4	2
Finger and Landsteiner, 1906	Early syphilis	6	2
R. Frühwald, 1912	Secondary syphilis	5	0
Uhlenhuth and Mulzer, 1912	Primary	2	2
	Secondary	11	11
	Tertiary	2	0
	Latent	1	1
Uhlenhuth and Mulzer, 1913	Latent	15	0
F. Graetz, 1914	Latent (3-11 yrs.)	6	0
F. Graetz, 1914	Secondary syphilis	18	7
R. Frühwald, 1914	Latent (½-6 yrs.)	15	2
R. Frühwald, 1915	Latent	1	1

Although spirochetes may be absent from the blood stream, lymph glands, the liver, spleen and bone-marrow may harbor spirochetes in great numbers. Zabolotny, in 1906, demonstrated spirochetes in the spleen of a syphilitic monkey, and Uhlenhuth and Mulzer have been able to recover the organism from the spleen and liver with little difficulty. Elliot and Wile [19] found, in a study of 100 cases of early syphilis, that the spleen was the first organ to be enlarged. Of these cases, thirty-six gave evidence of palpable splenic tumors. Splenic puncture yielded spirochetes. We have found it of value to macerate these organs and use an emulsion for inoculation of new series of rabbits at a time when testicular lesions had disappeared and dark-field examinations had been found repeatedly negative. This technic enabled us to recover strains that appeared to have been lost.

Analysis of the positive results obtained with blood from active syphilis brings out some points of interest, of which the most important is the relatively low infective power of blood from active cases of syphilis. In practically all of the instances recorded no treatment had been given. That the blood is not highly infectious is borne out by clinical observations, as well as by those who are obliged to come into contact with patients. Spirochetes may be found in the blood stream forty days after the initial signs of infection and from about three to four weeks before the secondary rash. In untreated cases, they may be present six months after the begining of symptons. It appears, in general, that spirochetes are few in number in the blood,

19. Elliot and Wile: J. Cutan. Dis. **34**:645, 1916.

or at least are present in an attenuated form. The work of Finger and Landsteiner did not establish the presence of spirochetes in the lesions found in the monkeys inoculated. This study is of doubtful importance.

There remain to be considered those cases that have been classified as latent syphilis. Thirty-eight inoculation experiments have been reported with four positive results, one by Uhlenhuth and Mulzer [20] and three by Frühwald.[21] The patient whose case was described by Uhlenhuth gave the following history: She was an asymptomatic mother, with a syphilitic child born eighteen days prior to the taking of the blood specimen. The Wassermann reaction was positive. The husband was frankly syphilitic. No mention is made of the later history of the patient. It is questionable whether this may be called true latency. The three histories given by Frühwald can hardly be looked on as the history of latent syphilis since lesions were present in one instance on the mouth, in another, a papular eruption with sores on the labia and in the third, a sore on the labia minora.

MATERNAL TRANSMISSION OF SYPHILIS

A majority of the mothers of syphilitic infants are known to give a positive Wassermann reaction, and this has been observed in a great number of instances in women who may not have signs of syphilis.

In relation to infant mortality, statistics reviewed by Jeans [22] show that about 10 per cent. of married women are syphilitic and about 10 per cent. of marriages involve syphilitic persons. Of all births in a syphilitic family, 75 per cent. are infected; 30 per cent. of pregnancies end in death at or before term; 30 per cent. of all living children born in a syphilitic family die in infancy. In all probability from 25 to 30 per cent. of clinically syphilitic infants die as a result of syphilis. Only 17 per cent. of all the pregnancies in syphilitic families result in living nonsyphilitic children who survive the period of infancy. Baisch,[23] in a serologic study of mothers and infants, explains positive reactions in mothers on the following grounds:

The mothers may have latent syphilis. The substance responsible for the reaction may come from the fetus and pass into the maternal circulation without causing syphilis. The mothers may be immunized.

He is of the opinion that the first explanation—latent syphilis—is the correct one because spirochetes are found in the maternal part of the placenta, the positive reaction persists several months after

20. Uhlenhuth and Mulzer: Berl. klin. Wchnschr. **49**:153, 1912.
21. Frühwald: Wien. klin. Wchnschr. **25**:584, 1912.
22. Jeans: Am. J. Syph. **3**:114 (Jan.) 1919.
23. Baisch: München. med. Wchnschr. **56**:1929, 1906.

childbirth, and the reaction may be positive in the mother and negative in the child and inversely. One might object to such an interpretation on the ground that the Wassermann reaction is invoked in an attempt to differentiate maternal from paternal transmission when its sole value in this connection would be to show merely that the mothers were probably syphilitic. It is difficult to draw distinctions between a latent and a cured syphilis or between a latent syphilis and actual immunity. This question may be settled by inoculation experiments.

Latent syphilis in women, whatever its mode of origin, is one of the problems in maternal transmission of the disease to children. Undue stress cannot be laid on either maternal or paternal transmission by itself. Both sources are equally important, irrespective of the origin. In women, latent syphilis may possibly be brought about by infection with spermatic fluid, remain localized in the inner genitalia and regional lymph glands, particularly the peritoneum, and often lead to nothing more than transitory symptoms. Apparently healthy mothers may give birth to syphilitic children, not only from the first husband who was syphilitic, but from a second or third healthy husband. Prolonged observation of cases in certain families gives us much valuable information. When fathers have been infected, the mothers have been found free from disease for periods ranging from four to as long as nineteen years. The likelihood of these women having latent syphilis cannot be overlooked. The question resolves itself into whether a mother of a syphilitic child has been infected by the father and is therefore always syphilitic, or whether the child has been syphilized through the ovum without maternal infection being present. There may be three theoretical possibilities in the latter instance, namely: The fetus may infect the mother, she may be "immunized" by the fetus, or she may remain unaffected.

THE OCCURRENCE OF SPIROCHAETAE PALLIDAE IN LYMPH GLANDS

Early in the disease lymphatic glands may be found to contain numerous *Spirochaetae pallidae*. Induration of the regional glands is so important a feature of syphilis that this clinical sign is very often relied on in the absence of induration of the chancre. *Spirochaetae pallidae* exhibit a predilection for the lymphatics and the walls of the capillary vessels and veins, are numerous in connective tissues and in the vessel walls of blood and lymph channels. The earliest studies of Schaudinn and Hoffmann pointed to rapid invasion of lymphatic glands by the spirochetes. By direct puncture *Spirochaetae pallidae* could be demonstrated in the dark field. That such glands are infectious in nature has been shown by Metchnikoff and

Roux who inoculated lymph glands from primary syphilis with positive results. Finger and Landsteiner report a number of successful inoculations with similar material taken from four to six weeks after primary symptoms, and in the secondary stage preceding eruption. In one instance, it was possible to infect monkeys with glands removed eleven weeks after the infection had occurred. It is evident that the lymph channels convey the spirochetes rapidly throughout the body and serve to bring about dissemination of the organisms. Although the corresponding blood vessels may not contain spirochetes, these may be abundant in the perivascular spaces in the lymphatic vessels. Direct proof of the rapidity with which regional invasion occurs may be found in experimental studies recently reported by Brown and Pearce [1] and by one of us.[2] It was found, for example, that a syphilitic infection is not to be regarded as limited to the portal of entry, but that immediately after infection takes place, the spirochetes begin to multiply and invade the surrounding tissues, thereby gaining access to the lymphatics and the blood stream, and are widely distributed some time before any initial lesion can be detected. Even as early as forty-eight hours after the time of inoculation of rabbits' testicles, inguinal lymph glands were found to contain spirochetes with which it was possible to infect animals. As a corollary to this experiment, invasion of the blood stream was studied and it was found that *Spirochaetae pallidae* were constantly present in the circulating blood by the time an infection could be recognized at the point of inoculation. As early as one week after inoculation, circulating blood contained spirochetes in sufficient numbers to infect rabbits. These findings are in keeping with Reasoner's [24] experimental studies made in 1916 on the question of generalized infection in syphilis. He was able to transmit the disease with the blood serum of rabbits seventeen days before the initial lesion was palpable. Similarly, when the inoculated testicle was removed some time before the appearance of any initial lesion, the blood was found to be infectious notwithstanding.

It is apparent that the glands must play an important part in favoring recrudescence in syphilis, which by its very nature is chronic. A localized focus in the body can serve as a source from which organisms may be discharged at intervals into the blood stream. There are analogies in certain infectious diseases in which streptococci, for example, are involved. A small lesion on the heart valve appears to act as a reservoir from which the blood stream is constantly fed. As soon as the infected focus is removed or healed, the blood becomes free from organisms. The same point may be illustrated by experimental strep-

24. Reasoner, M. A.: Early Death from Cerebral Syphilis, with Successful Rabbit Inoculation, J. A. M. A. **66**:1917 (June 17) 1916.

tococcus infection of a rabbit's ear. If the infected tip of the ear be amputated, streptococci disappear immediately from the circulation. Such systemic invasions must be differentiated from true septicemias or generalized infections. Although it is true that in syphilis a protracted blood infection occurs after a certain incubation period has been passed in the primary sore, there is evidence to support the theory that the lymph glands may harbor the spirochetes for an indefinite period after primary infection, and these may get into the circulation in large numbers from time to time. A vicious cycle may be established in the body by metastatic processes. Distant glands may be infected through the blood, while at intervals the blood stream may remain comparatively free from spirochetes. Each new focus can serve as an additional infective reservoir.

The application of this conception to latent syphilis is apparent. There is abundant clinical evidence that a large number of latent syphilitic persons, who have received no treatment or inefficient medication, exhibit general adenitis. In women one sees often nothing more than cachexia and joint pains and often no symptoms other than a swelling of the inguinal glands. For many years such women may appear to be well. The part played by latent syphilitic women in transmitting the disease to offspring is probably greater than heretofore surmised. Experimental evidence is meager. Our own results tend to show that this phase of congenital syphilis may be of vast importance and merit much study. In two instances it was found that inguinal glands from women who gave no history of syphilis and were to all appearances healthy, were capable of infecting experimental animals with the disease. Buschke and Fischer,[25] reported the finding of spirochetes by puncture in the inguinal gland of a woman who showed no signs of syphilis, and who gave birth to a syphilitic child. Supposedly this was an instance of a "Colles" mother and a typical example of the relation between the spirochetes harbored by the host and an apparent immunity in the individual.

SPIROCHAETA PALLIDA AND THE SPINAL FLUID

Attempts have been made to isolate *Spirochaeta pallida* from spinal fluid, with little success. Dohi and Tanaka[26] found the organism in fluid taken from a case of papular syphilis. Nichols and Hough[27]

25. Buschke and Fischer: Compt. rend. Soc. de biol. **58**:845, 1905; Berl. klin. Wchnschr., 1906, No. 13, p. 383.

26. Dohi and Tanaka: Quoted by Metschnikoff, System of Syphilis **1**:61, 1914.

27. Nichols, H. J., and Hough, W. H.: Demonstration of Spirochaeta Pallida in the Cerebrospinal Fluid. J. A. M. A. **60**:108 (Jan. 11) 1913.

isolated a strain from a case of neurorecidive, Reasoner [28] also obtained a strain from a fatal case of syphilis. In general, cerebrospinal fluid appears free from any infective power, except in rare instances.

PATERNAL TRANSMISSION OF SYPHILIS

Apart from transmission of syphilis on the paternal side resulting from active lesions on the genitalia, an additional source of infection may, according to our findings, be the seminal fluid. Transmission by means of the semen, while supposed to take place by the entry of *Spirochaeta pallida* into the spermatozoon or by infection of the ovum with the spirochete is not accepted universally on the ground that the spirochete is too large to enter the spermatozoon and for the same reason cannot enter the ovum without destroying it. Hochsinger [29] reports a study of seventy-two families in which paternal syphilis was present and the mothers were free (?) from disease during periods of from four to nineteen years, although examined repeatedly. (In fifty cases the mothers were under observation for more than six years.) The seventy mothers gave birth to 276 children: 110 were still born, 166 syphilitic and 31 healthy.

Spirochetes seem to have a decided affinity for the testicular parenchyma. As a rule, the syphilitic process is confined to the testicle. From Finger and Landsteiner's [30] studies, in which two positive inoculations were obtained out of four, we can conclude that semen may be infectious even when there are no syphilitic processes on the genitalia, since in one instance he dealt with a case of recent syphilis with no testicular involvement. Pathologic studies by Warthin [31] have demonstrated the presence of spirochetes in active cellular infiltrations of the testes.

A few positive inoculations have been obtained with semen in active cases of syphilis. Uhlenhuth and Mulzer [32] have studied six cases, of which two resulted positively. One of these is questionable owing to the presence of a papule on the coronary sulcus. Neisser and Hoffmann [33] have separately studied ten specimens with negative results. We have been unable to find any reference to inoculation experiments with semen obtained from latent syphilitic persons other than one case

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28. Reasoner, M. A.: Some Phases of Experimental Syphilis, J. A. M. A. **67**:1799 (Dec. 16) 1916.
29. Hochsinger: Cited by Mott, System of Syphilis, 1914, Ed. 11, p. 418.
30. Finger and Londsteiner: Arch. f.. Dermat. .u. Syph. **81-82**:152, 1906; **81-82**:147, 1906.
31. Warthin: Am. J. Syph. **2**:425, 1918.
32. Uhlenhuth and Mulzer: Centralbl. f. Bakteriol., Part 2, Orig. **64**:165, 1912.
33. Neisser and Hoffmann: Arb. a. d. k. Gesndhtsamte **37**:72, 1911.

mentioned by Uhlenhuth and Mulzer,[34] and this was entirely negative. This patient had syphilis six years previous to the time of taking the specimen. He had been treated, gave no symptoms and had a positive blood Wassermann reaction.

REPORT OF PRESENT INVESTIGATION

Experimental.—Latency in syphilis has been defined and interpreted in various ways, chiefly owing to the greater or less importance which may have been attached to the Wassermann reaction by different workers. For practical purposes, the definition ought to take into consideration the nature of the problem and the possible significance of whatever results it may yield. Therefore we have disregarded entirely the narrow application of a serologic test and have viewed the study solely from the standpoint of the transmissibility of a highly infectious disease and its importance as a social problem. The groups of patients which were investigated, though not as large as they might be owing to the time limit entailed in the work, represent in a general way the most important sources of infection among persons who may be termed actual "carriers." The only limitation imposed in the definition of latency was the freedom from definite symptoms of the disease or any frank lesions in so far as these could be determined clinically.

The object of this investigation was to determine the infectivity of (1) lymphatic glands, (2) semen, (3) blood, (4) spinal fluid, and (5) nasal washings obtained from persons known to have syphilis in a latent form. (6) The tonsils and postmortem testes were studied in too few instances to merit a detailed report of the results at this time.

The cases studied were grouped in accordance with the following classification of latency which was devised with a view to include all possible sources of suspicious material:

Group 1. Syphilitic persons who have received no treatment during the last two years, with no symptoms, but with a positive blood Wassermann reaction.

Group 1 (*a*). Same as Group 1, but these patients gave a negative Wassermann reaction.

Group 1 (*b*). Syphilitic patients who had become serologically "well" according to the following definition:

(*a*) Two successive well-spaced negative blood Wassermann reactions.

(*b*) A negative spinal fluid Wassermann reaction three months after a rest period.

(*c*) Normal cell count on spinal fluid.

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34. Uhlenhuth and Mulzer: Berl. klin. Wchnschr. **50**:2031, 1913.

GROUP 2. Those who have a distinct clinical history of syphilis, who have never received any treatment, who have no symptoms, but who have a positive blood Wassermann reaction.

GROUP 2 (*a*). Same as Group 2, but these patients gave a negative blood Wassermann reaction. All patients in this group must have given a history under any or all of these heads:

(*a*) Primary sore at some time in the past
(*b*) Marriage to a syphilitic person
(*c*) Miscarriages

GROUP 3. Patients with visceral syphilis, such as aortic aneurysm or cerebrospinal syphilis and the like—any form other than skin and mucous membrane involvement, with a positive blood Wassermann reaction.

GROUP 3 (*a*). Same as Group 3, but these patients gave a negative blood Wassermann reaction.

This classification was supplemented further with those women who would be classed according to Colles' Law and children according to the law of Profeta, that is, mothers who were themselves clinically asymptomatic but whose children were syphilitic, and children who were clinically asymptomatic but whose mothers were syphilitic, respectively.

Of a total number of 500 syphilitic persons seen at the Washington University Medical School clinic during the year, seventy-five definite latent cases could be selected (15 per cent.). Wherever possible, several different materials were taken from each patient. From the time when symptoms were first noticed, according to the patient's history, and the date of obtaining specimens, from one to forty years elapsed, so that the groups we examined represented all stages of latency.

Technic.—Healthy, full-grown male rabbits, with well-developed testes, were used in the inoculation experiments. The species were chiefly white and gray, although Rufus reds and a few Flemish giants were included in the series. No difference in susceptibility could be found by control inoculations. Fluid materials, such as the blood, semen, spinal fluid and nasal washings were injected in amounts of 1.5 to 2.0 c.c. Glands and testes were first macerated with sterile quartz sand, suspended in 5.0 c.c. salt solution, filtered through gauze and injected similarly into the rabbits' testes by inoculating along the long axis and expelling the material as the needle was being withdrawn slowly from the body of the testes. All materials—with exception of a series of blood specimens which was incubated for periods varying from three days to four months—were injected in from about fifteen minutes to half an hour from the time they were obtained.

Blood was obtained with scrupulous care from the median vein of the arm after cleansing the area with iodin and alcohol. From 10 to 15 c.c. were drawn with a Luer syringe, part of the blood next defibrinated with glass beads in a test tube and a portion set aside for incubation in sealed tubes to be employed in a separate series which included specimens kept at 37 C. for periods of time ranging from three days to four months. Spinal fluid, free from blood, was obtained in the usual manner by lumbar puncture. Semen was collected in sterilized condoms by manual friction after thoroughly cleansing the penis and meatus. Inguinal glands were excised under local anesthesia from patients in whom the glands were not too deeply situated. Nasal washings were obtained by spraying from 4 to 5 c.c. of sterile salt solution into the nose of the patient so that the fluid passed out through the opposite nostril into a Petri dish. Rinsings from both nostrils were made available for injection in this manner.

Inoculated rabbits were examined carefully at frequent intervals within three weeks after injection. Dark-field examinations of the testicular fluid material were made at least every two weeks even when no visible changes occurred, in order to safeguard against missing minute lesions within the body of the testes. Punctures were made with sterile glass pipets drawn out and broken off at the end so as to leave a sharp cutting edge. By means of gentle pressure and a slight boring motion, laceration was avoided. Observations were continued over a period of eight months and in many instances for a year. Animals which have remained negative to date are still under observation.

1. INFECTIVITY OF LYMPHATIC GLANDS FROM LATENT SYPHILITIC PATIENTS

Fourteen inguinal glands from as many patients were inoculated into rabbits' testes. Of this entire series, three rabbits died within three months after inoculation, showing no signs of infection (Table 3).

TABLE 3.—GROUP SUMMARY (GLANDS)

1. No treatment within past two years:		
Time elapsed between first symptoms and date of specimen:		
1 to 5 years	1	
5 to 10 years	1	
10 to 15 years	4	
40 to 50 years	1	
	—	7
2. No treatment, no history		3
3. Visceral syphilis (other than skin and mucous membrane), no history		2
4. Colles women, no history		2
Total males	6	
Total females	8	

Positive results were obtained with glands from 3 patients, 2 female and 1 male.

Experiment A.—F. D., a woman, aged 33, had had one miscarriage eleven years before. The blood Wassermann reaction was ++. She had had no pregnancies since her last miscarriage. She had received no treatment at any time. Her husband was well.

Oct. 13, 1919: Rabbit 116 received a right intratesticular injection with 5 c.c. of salt solution suspension of inguinal gland from the patient. Dark-field examination of the original suspension was negative for *Spirochaeta pallida.* The animal remained negative until December 6, when the testicle appeared slightly swollen and indurated. No definite nodules could be detected on palpation. Diffuse orchitis was present. Dark-field examination of a small amount of material obtained by capillary puncture revealed enormous numbers of *Spirochaetae pallidae.* The incubation period was fifty-four days. The strain was lost in the second generation.

Experiment B.—M. G., a young woman, aged 19, gave no history of syphilis. Her family history was negative. The blood Wassermann reaction was ++. She had never received any treatment.

Oct. 27, 1919: Rabbit 137, received a left intratesticular injection with 3 c.c. salt solution suspension of inguinal gland.

Dec. 15, 1919: The left testis was greatly indurated and somewhat enlarged. Dark-field examination of testicular fluid revealed numerous *Spirochaetae pallidae.* The incubation period was fifty days. Subsequent generations of this strain developed after from four to five weeks' incubation.

Experiment C.—D. C., a young man, aged 21, had had a chancre on the penis one year before, the duration of which was two weeks; he received two arsphenamin treatments at this time. The inguinal glands were enlarged during the course of treatment. There was no history of skin eruption. Following treatment, the Wassermann reaction was negative after two months. Intensive treatment was again begun with mercury and arsphenamin. The Wassermann reaction was + in the cholesterin antigen only at the time the gland was excised for this experiment.

April 12, 1920: Rabbit 226 received a right intratesticular injection with 1.5 c.c. of salt solution suspension of the inguinal gland.

April 26, 1920: The testis was enlarged and firm in the upper pole; puncture showed slight secondary infection.

July 6, 1920: Secondary infection had almost entirely receded.

Aug. 23, 1920: A small, fluctuating mass was palpable at the upper pole of the right testis. Puncture proved positive for *Spirochaeta pallida* in the dark field. The incubation period was 133 days. Owing to early secondary infection during which *Spirochaeta pallida* may have been missed, this incubation period is doubtful. In the second generation the period of incubation was reduced to about five weeks.

It is important to note that in one of these cases the Wassermann reaction had remained negative after antisyphilitic treatment and was found to be + in cholesterin antigen only at the time the gland was shown to contain active virulent *Spirochaeta pallida.*

It is of interest in this connection to observe that animal inoculations with the blood specimens from these three patients resulted negatively.

2. INFECTIVITY OF SEMEN FROM LATENT SYPHILITIC PATIENTS

Seventeen specimens of semen were inoculated from different patients. In this series, four rabbits died within one month and two within three months after injection, showing no signs of syphilis (Table 4).

Semen was found to contain active, virulent *Spirochaeta pallida* in two instances. The blood from these patients was injected into rabbits with negative findings.

TABLE 4.—GROUP SUMMARY (SEMEN)

1. No treatment within past two years:		
Time elapsed between first symptoms and date of specimen:		
1 to 5 years	2	
5 to 10 years	1	
10 to 15 years	1	
15 to 20 years	3	
No history	2	
	—	9
Negative Wassermann reaction, 1.		
2. No treatment:		
1 to 5 years	2	
10 to 15 years	1	
No history	1	
	—	4
3. Visceral syphilis (other than skin and mucous membrane):		
1 to 5 years	1	
15 to 20 years	2	
25 to 30 years	1	
	—	4

Experiment A.—J. D., aged 39, gave a history of chancre on the penis thirteen years before. At this time he took pills for a period of three years and two doses of arsphenamin about three years later. Since that time he had received no treatment. At the time the specimen of semen was obtained the patient was found to have a stricture of the rectum. The blood Wassermann reaction was ++ in the cholesterin antigen only. One week previous, the Wassermann test had proved negative.

Oct. 15, 1919: Rabbit 117 received a left intratesticular injection with 2.5 c.c. semen containing normal spermatozoa and microscopically negative for *Spirochaeta pallida*. Two testicular punctures made on December 10 and January 27, respectively, were negative and the rabbit was apparently normal. The animal was not examined again, through an oversight, until February 16, when a lesion was noticed on the left testis. There was an area of induration surrounding a dried crust about 1 cm. in diameter, and the general appearance was that of a typical receding chancre on the scrotum. Dark-field examination of the serous exudate from beneath the dried crust was negative. Puncture fluid from the testis was also negative.

Feb. 16, 1920: The excised testis was macerated and injected into testes of rabbits 255 and 256. Rabbit 256 died within two weeks without showing any lesions. Rabbit 255 received 3 c.c. of suspension into the right testicle and 1 c.c. into the left.

Between March 16 and June 16, thirteen testicular punctures were made and found negative for spirochetes. The testicles were normal. July 1, 1920, a small nodule, the size of a pea was found at the upper pole of the right testicle. Puncture yielded a serosanguineous sticky fluid containing enormous numbers of *Spirochaetae pallidae* of a very thin type. The incubation period was four months in the first generation and about the same in the second.

Experiment B.—S. L., aged 18, gave a history of chancre on the penis one year before, followed by secondary rash. No treatment was taken at any time. The blood Wassermann reaction was ++.

Oct. 20, 1919: Rabbit 131 received a left intratesticular injection with 1.5 c.c. of semen containing normal spermatozoa and microscopically negative for *Spirochaeta pallida*. The animal remained normal and dark-field examinations on puncture fluid from the testis were entirely negative throughout a period of more than six months.

May 19, 1920: The left testis was indurated at the upper pole with a circumscribed orchitis and no marked enlargement. Puncture material contained numerous *Spirochaetae pallidae*. Two rabbits were inoculated intratesticularly with puncture fluid from this rabbit. Both animals died within one month, showing no signs of syphilis. Rabbit 131 was found dead July 6. The incubation period was seven months. Later generations of this strain developed in about three weeks, on an average. The speed of an initial "take" may be influenced by the number of spirochetes present in the original specimen and by the abrupt change of environment, so that too great stress cannot be placed on differences in incubation period observed in the first generation of strains isolated.

Again it should be noted that a positive inoculation was obtained with semen from a patient whose Wassermann reaction was positive in the cholesterin antigen only. He had received treatment for three years, a considerable time prior to excision of the gland for the experiment shortly before which the Wassermann test proved negative. In view of the fact that this man had had syphilis thirteen years previously and in the light of the findings we have reported in this instance and in one of the experiments made with inguinal glands, it is important that more stress than ever should be placed on the necessity for a series of successive negative Wassermann reactions as a guide to cure in syphilis.

3. INFECTIVITY OF BLOOD FROM LATENT SYPHILITIC PATIENTS

A total of seventy-three specimens have been examined with negative results. An additional series of thirty-six specimens, defibrinated as well as clotted, duplicating a number of the entire group, was incubated for a period of from three days to four months. Inoculations with these blood specimens resulted negatively (Table 5).

TABLE 5.—GROUP SUMMARY (BLOOD)

1. No treatment within past two years:		
Time elapsed between first symptoms and date of specimen:		
1 to 5 years	3	
5 to 10 years	2	
10 to 15 years	6	
15 to 20 years	4	
20 to 25 years	2	
25 to 30 years	2	
30 to 40 years	2	
No history	3	
Negative Wassermann reaction following intensive treatment	3	
	—	27
2. No treatment:		
1 to 5 years	1	
5 to 10 years	1	
10 to 15 years	2	
15 to 20 years	2	
No history	19	
	—	25
3. Visceral syphilis (other than skin and mucous membrane):		
1 to 5 years	1	
5 to 10 years	0	
10 to 15 years	0	
15 to 20 years	1	
20 to 25 years	4	
25 to 30 years	2	
30 to 40 years	2	
No history	6	
Negative Wassermann, 2.		
	—	16
4. Colles women		3
5. Profeta's children		2
Total males	41	
Total females	32	

4. INFECTIVITY OF SPINAL FLUID FROM LATENT SYPHILITIC PATIENTS

Thirty-one specimens of spinal fluid were injected into rabbits' testicles, with negative results. The fluids showed lymphocytosis in ten cases with a negative Wassermann reaction in all but one instance. The corresponding blood Wassermann reactions were positive in all but two instances, and in these the cell count was less than 8 (Table 7).

Corzan,[35] in a study of sixty-five patients who had been treated and a number of whom were clinically free from syphilis, found a lymphocyte increase in 40 per cent. of those who gave a positive blood Wassermann reaction and in 30 per cent. of those who gave a negative reaction.

5. INFECTIVITY OF NASAL WASHINGS FROM LATENT SYPHILITIC PATIENTS

Twenty-four specimens of nasal washings were injected into rabbits with entirely negative results.

35. Corzan: J. Nerv. & Ment. Dis. **49**:282, 1919.

TABLE 6.—GROUP SUMMARY (SPINAL FLUID)

1. No treatment within past two years:		
Time elapsed between first symptoms and date of specimen:		
5 to 10 years	1	
10 to 15 years	1	
30 to 35 years	1	
No history	4	
	—	7
2. No treatment:		
5 to 10 years	1	
No history	8	
	—	9
3. Visceral syphilis (other than skin and mucous membrane):		
1 to 5 years	2	
15 to 20 years	2	
25 to 30 years	1	
30 to 40 years	3	
No history	6	
	—	14
Negative Wassermann reaction, 2.		
5. Profeta's children		1
Total males	21	
Total females	10	

TABLE 7.—WASSERMANN REACTIONS AND CELL COUNT IN SPINAL FLUIDS OF LATENT SYPHILITIC PATIENTS

Cell Count *	Wassermann Reaction	Latent Group
6	—	1
5	—	1
5	—	1
380	—	1
75	—	1
20	—	1
6	—	2
20	++++	2
30	Globulin +	2
220	Globulin +	2
12	—	2
5	—	2
17	—	3
6	—	3
4	—	3
90	—	3
9	—	3
6	—	3
6	—	3
5	—	3
4	—	3
2	—	3
3	—	3
90	—	3

* Omitted in seven cases.

6. INFECTIVITY OF TONSILS FROM LATENT SYPHILITIC PATIENTS

Owing to the highly infectious nature of the secondarily invading organisms present in tonsils, it was impossible to make an intensive study of tonsillar material. Streptococci invariably killed the rabbits of a series made with tonsils which were obtained from six different patients. The Wassermann reaction in each instance was positive and the family history pointed definitely to syphilis. In one instance, that of a child aged 10, whose father was syphilitic, a dark-field examination of a suspension prepared from the tonsils showed what appeared to be typical *Spirochaeta pallida* in considerable numbers. The other specimens were negative microscopically. Since the rabbits did not survive more than four days after intratesticular inoculation, this single observation is of doubtful value.

TABLE 8.—GROUP SUMMARY (NASAL WASHINGS)

1. No treatment within past two years:		
Time elapsed between first symptoms and date of specimen:		
1 to 5 years	2	
5 to 10 years	2	
10 to 15 years	1	
15 to 20 years	2	
No history	2	
	—	9
Negative Wassermann reaction, 1.		
2. No treatment:		
1 to 5 years	1	
10 to 15 years	1	
No history	5	
	—	7
3. Visceral syphilis (other than skin and mucous membrane):		
15 to 20 years	2	
20 to 25 years	1	
25 to 30 years	2	
30 to 40 years	1	
No history	2	
	—	8
Negative Wassermann reaction, 1.		
Total males	15	
Total females	9	

DISCUSSION

It has been shown by experiment that inguinal glands and semen obtained from persons clinically free from syphilis are infectious, proving that latent syphilitic patients may be considered as sources of danger in the spread of the disease to offspring and to the community. The fact has been established that *Spirochaeta pallida*, though remaining dormant in the body of a person, may retain its virulence and infectivity for an indefinite period.

From the standpoint of the carrier problem, these findings are of interest and importance in pointing the way to a better understanding of latency and immunity to reinfection with syphilis. It has been believed for some time that immunity to the disease means the presence of *Spirochaeta pallida* somewhere in the body and that a return to susceptibility is coincident with a complete cure in the sense that the body has been freed from the organisms. Indeed, pathologic studies with postmortem material have suggested that spirochetes remain for long periods of time within the body, although in cases of latent syphilis the demonstration of spirochetes in organs has not been attended with much success. The value of such microscopic findings, however important, are not conclusive or sufficiently rigorous by themselves. In the absence of experimental proof positive that these tissues contain spirochetes which may infect animals, results such as we have reported seem to fill the necessary requirement, particularly in view of the fact that we have dealt with patients who were latent syphilitics in the strictest sense of the term.

An interpretation of the results is difficult to make. The percentage of positive "takes" with material from each of the groups we have examined is not an indication of the possible true figure which a more extensive study might bring forth. In view of the difficulty involved in obtaining primary inoculations with material transferred from man to animals and of certain technical drawbacks which are part of such a problem, it is safer, perhaps, to state that the positive findings are, if anything, lower than one might expect. The amount of material available and the number of organisms present in any specimen will tend to modify results. Generalizations cannot be made, owing to the uncertainty of patients' histories, however carefully these may be obtained.

The finding of virulent spirochetes in the inguinal glands and in the semen of latent syphilitic patients suggests that certain parts of the body act as reservoirs from which the spirochetes may be discharged from time to time. How long the carrier state may persist cannot be determined, except by study of a large series of cases. What is of vast importance is the fact that residence within the host does not render innocuous the organisms responsible for the disease.

The question may arise: Is the carrier state in latent syphilis merely an example of recent superinfection which evidences itself in a mild form because of a previously established tolerance? There is experimental evidence to show that probably no reinfection can take place so long as spirochetes are present in the body. Neisser demonstrated in monkeys a resistance to reinoculation during the period when *Spirochaetae pallidae* were found to be present, and a complete sus-

ceptibility only in animals that had been cured by atoxyl, arsacetin and the like. Clinical experience has borne out this conception beyond any doubt. The further possibility that minute lesions which may have escaped detection are present in those cases which are termed latent cannot be excluded, yet the histories throw light on this point, and furthermore, clinical signs, if absent, serve to establish what we understand as latency. The explanation of latency is distinct from the problem of transmission of syphilis by carriers. Persons with no *visible lesions* and *clinically free* from the disease, may harbor *Spirochaetae pallidae* in semen and lymph glands. This is the contribution of the present investigation to the subject of latent syphilis.

SUMMARY AND CONCLUSIONS

In this study *Spirochaetae pallidae* have been isolated in five instances from latent syphilitic patients—three times from inguinal glands (two female and one male) and twice from the semen. The strains produced typical syphilitic lesions in rabbits' testicles and could be recovered and propagated for an indefinite number of generations. The incubation periods of spirochetes isolated from the gland were, respectively, 50, 54 and 133 days, the last being doubtful owing to an early secondary infection in the experimental animal. The two strains which were isolated from the semen developed after four and seven months, respectively.

TABLE 9.—General Summary

Source of Material	Number Injected	Positive Inoculations
Blood	73	0
Blood (incubated series)	36	0
Spinal fluid	31	0
Nasal washings	24	0
Inguinal glands	14	3
Semen	17	2
Testes (postmortem)	2	0
Tonsils	6	0*

* Experiments incomplete.

Spirochaetae pallidae were isolated from patients who gave a history of syphilis dating back eleven and thirteen years in two instances and one year in three instances. An inguinal gland and the semen proved positive for spirochetes in the two first cases mentioned and the glands and semen in the last named. In this series of positive results, a gland was found to be infectious in the case of a man whose Wassermann reaction had been negative, following treatment, and at the time of taking a specimen for the experiment gave a + + reaction in the cholesterin antigen only. A second instance of this nature was

found in the case of a specimen of semen which proved positive for *Spirochaetae pallidae*.

As far as studies with these different strains have progressed, there is no indication that *Spirochaetae pallidae* have lost in virulence for the rabbit. Detailed experiments on infectivity and other phases of experimental syphilis with these and other strains will be reported subsequently.

It appears from this investigation and from that of others that the blood and other body fluids, excepting semen, are not infectious in latent syphilis, or if so, rarely.

Incubation of blood from latent syphilitic patients did not favor any infectious property which might have existed. Thirty-six specimens, duplicates of those in the series, were incubated at 37 C. for from three days to four months before injection into rabbits' testicles. The results were negative.

One third of the total number of spinal fluids from latent syphilitic patients gave evidence of lymphocytosis, and one gave a positive Wassermann reaction.

Tonsils could not be studied owing to severe secondary infections which were set up in the experimental animals. In one case, a dark-field examination showed what appeared to be *Spirochaetae pallidae* in an emulsion of a tonsil taken from a child with a family history of syphilis and himself giving a positive Wassermann reaction, although free from symptoms or visible lesions. The rabbits failed to survive injection of material.

The groups studied were composed of untreated patients, as well as of those who had received no treatment within the past two years. Between the time of taking specimens for inoculations of rabbits and the first symptoms or a suggestive history of syphilis in these patients, from one to forty years had elapsed.

Of a total of 500 cases of syphilis, which were seen at the clinic, seventy-five, or exactly 15 per cent., of the number were definitely latent.

These investigations demonstrate the fact that those who give a history of a syphilitic infection may harbor active virulent *Spirochaetae pallidae* for years, and this in the face of irregular negative Wassermann reactions or slight reaction in the cholesterin antigen only.

VISCERAL SYPHILIS

SYPHILIS OF THE INTESTINE *

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INTRODUCTION

With the exception of syphilis of the rectum, syphilis of the intestine may be said to be a rare entity, at least from the clinical standpoint. The condition is recognized frequently, however, in syphilis of the new-born, and we are principally indebted to pathologic reports for literature on cases of true intestinal syphilis in the acquired form of the disease. The bedside recognition of the condition, which today perhaps is facilitated by the serologic examination, was a few years ago well-nigh impossible. A few cases recognized *intra vitam* are from time to time seen in surgical clinics in which the patients are operated on for various abdominal conditions simulated by syphilis. Thus, for example, intestinal obstruction, perforation, peritonitis, tuberculosis and carcinoma are conditions for which operation is occasionally resorted to, and in which syphilitic conditions of the bowel, both small and large, are occasionally encountered. Neumann,[1] while stating that syphilis of the intestine is rare, mentions it as occurring somewhat more frequently than gastric syphilis; from my own study of the literature, I am convinced that it is no more frequent. Fraenkel,[2] in an analysis of 19,000 postmortem examinations covering ten years, found only three cases of genuine intestinal syphilis. Oberndorfer,[3] who has written an extensive monograph on the subject, has collected only twenty-four cases of authentic intestinal syphilis. In ninety cases of intestinal stenosis, however, nine are reported by Reach [4] as having been caused

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* Studies and Contributions of the Department of Dermatology and Syphilology of the University of Michigan; service of Dr. Udo J. Wile.

1. Neumann: Nothnagel, Spez. Path. u. Therap., Hölder, Wien. **23**:405, 1899.

2. Fraenkel: Ueber tertiare Darmsyphilis, München. med. Wchnschr. **48**: 1262, 1901; Zur Lehrer von der Acquirirten Magendarmsyphilis, Virchow's Arch. **155**:507, 1899. Friedreich: Zur Chirurgischen Pathologie von Netz. u. Mesenterium, Arch. f. klin. Chir. **61**:998, 1900.

3. Oberndorfer: Ueber die viscerale Form der congenitalen Syphilis mit specieller Berücksichtigungen des Magen-Darmcanals, Virch. Arch. **159**:179, 1900.

4. Reach: Cited by Goto, p. 208.

by syphilis. Brunner [5] believes with Neumann that syphilis of the intestine is more common than syphilis of the stomach, but he calls attention to the frequent association of both. During a period covering five years' observation of hospitalized syphilitic patients, I have seen three cases of gastric syphilis, but no cases of intestinal syphilis.

Of Oberndorfer's cases, sixteen were cases of syphilis of the small intestine; two cases occurred in the small and large intestine together, one occurred in the ileocecal region, and four in the large intestine. From this report, it will be seen that by far the largest number of cases of intestinal syphilis occur in the small intestine, and all authors agree that the jejunum is more frequently involved than any other portion of the small intestine. Horwitz [6] has reported four cases of secondary sypihils associated with symptoms of chronic appendicitis, in which the symptoms disappeared entirely with mercurial treatment. In eleven cases collected by Rieder,[7] seven occurred in the small intestine and three in the large; one occurred in the ileocecal valve. Syphilitic involvement of the cecum is described by Vantini.[8] True syphilis of the appendix is described by Trinkler;[9] syphilitic ulcers in the descending colon by Borchard, Rotter [10] and Kummel. Gross [12] found syphilis in the ascending and transverse colon. Most changes occur late in the disease and are therefore part of the so-called tertiary period. A secondary enteritis, however, is recognized.

EARLY INVOLVEMENT

Incidence.—In association with the early catarrhal gastritis, and sometimes independent of this, catarrhal enteritis associated with the exanthem of the secondary period is occasionally seen. It differs from simple catarrhal enteritis only in not yielding to ordinary measures. A positive diagnosis of early catarrhal enteritis is possible only when the eruption is coincident with the exanthem, when it resists ordinary therapeutic measures and disappears promptly on antisyphilitic treatment. Even then it may be asserted that the evidence of syphilitic

5. Brunner: Syphilis des Darms, Deutsch. Chir. **46**E:333, 1907.

6. Horwitz: Four Cases of Secondary Syphilis Complicated with Chronic Appendicitis, Ann. Surg. **27**:74, 1898.

7. Rieder, Zur Kenntnis der Specifisch Darmerkrankungen bei Acquirirte Syphilis, Hamburger Jahrbuch, No. 1.

8. Vantini: Cited by Brunner.

9. Trinkler: Mitt. a. d. Grenzgeb. d. Med. und Chir. **10**:727; Chirurgische Kongress, 1904, p. 149.

10. Rotter: Cited by Brunner; Sigmoidio-Rectostomy, Langenbeck's Arch. **58**: 334, 1899.

11. Kummel: Cited by Brunner.

12. Gross: Cited by Brunner.

involvement is merely presumptive. It is now, however, accepted that coincident with the exanthem on the skin a general visceral roseola occurs. A few cases are recorded in which postmortem examinations have been performed when the patient died of early syphilis, in which discrete patches of erythema and swelling of the lymphatic follicles have been noted in the intestinal mucosa. When one considers how frequently the spleen, liver and heart are affected with clinical symptoms, it is indeed not surprising that the intestinal mucosa should share in the general early involvement. It may properly be presumed, therefore, that early intestinal involvement is far more common from a pathologic standpoint than is manifested clinically. In a few cases early syphilitic catarrhal enteritis has become chronic.

Symptoms.—These do not differ from those of acute catarrhal enteritis from any other cause. More or less pain, diarrhea and occasionally tenesmus with the passage of a little blood are present. Associated may be gastralgia, definite gastric catarrh, vomiting and loss of appetite. From these symptoms, it is clear that a diagnosis without further evidence is presumptive only.

Course.—The cases usually run a mild course. They are readily amenable to treatment, and if left untreated, usually take the course of the "intestinal roseola" with a gradual spontaneous disappearance.

LATE INVOLVEMENT

Incidence.—Late involvement is more common than early involvement. Occasionally recognized at the bedside, it is more frequently found at necropsy or at operation.

Symptoms.—The symptoms of late syphilitic enteritis depend on the location and on the type of lesion. They therefore present the clinical picture of ulcer, of abdominal tumor, of stenosis and of intestinal obstruction. In nonulcerating gumma one may have definite narrowing of the lumen; occasionally symptoms of abdominal tumor simulating carcinoma appear. When such a gumma ulcerates, the picture is one of an ulcerative enteritis with frequent diarrhea, with colicky pain and gradual emaciation. When such a lesion extends further and ulcerates into the peritoneum, the picture is in no way different from that of peritonitis. When there are numerous ulcers, such as have frequently been described, particularly in the jejunum, the clinical picture is identical with that of tuberculosis. There may be more or less fever; there is diarrhea with occasional periods of constipation; through partial healing there may be cicatrization and narrowing with symptoms of partial obstruction. When the ulcers have healed, whether they are superficial or deep gummas, the picture is identical with that of ileus. Cases simulating tuberculosis are recorded

by Guttmann,[13] Hueter,[14] and Blackmore.[15] The location of syphilis of the intestine near the ileocecal valve or the appendix may simulate appendicular colic.

The characteristic symptoms—pain, diarrhea, blood and pus, together with complications such as stenosis and ileus—make the symptoms identical with those of chronic ulcerative enteritis. Jaundice is noted as occurring by an extension of the process into the common bile duct (Oberndorfer[3]). An interesting case is reported by Fischer[16] in which a diagnosis of sarcoma of the ileum was made owing to an enormous tumor of the lower quadrant. Operation was considered impossible, but antisyphilitic treatment brought about complete recovery. In one of Fraenkel's cases, in which general peritonitis had occurred from perforation, ulcers were found in both the stomach and intestine. Cases in which recovery followed operation are also reported by Elder[17] and Rosenfeld.[18] In Solms'[19] case, in which the lesion was located in the splenic flexure of the colon, the picture was that of intestinal perforation, peritonitis and death. In Rosenfeld's case, a diagnosis was made *intra vitam* of syphilitic stenosis of the small intestine. This was substantiated at operation, and the patient made an excellent recovery. Cases simulating carcinoma are reported by Fraenkel and Goto.[20]

As a part of late syphilis, but in no way diagnostic of it, must be mentioned amyloid disease of the intestine. This is relatively uncommon. The diagnosis is invariably made postmortem; the symptoms are those of chronic ulcerative enteritis, or indeed, of amyloid disease which may be found due to inveterate syphilis with no symptoms referable to the gastro-intestinal tract.

Course.—In well developed cases, the course usually leads to a fatal outcome, generally caused by failure of diagnosis and from such complications as ileus and perforation. As a rule, the disease may drag

13. Guttmann: Multiple Dunndarmgeschwure hochstwahrscheinlich Syphilitischer Natur, Ztschr. f. klin. Med. **50**:404, 1903.

14. Hueter: Ueber Darmlues, München. med. Wchnschr. **53**:284, 1906.

15. Blackmore, A.: A Case of Syphilitic Ulceration of the Intestine, Lancet **2**:615, 1885.

16. Fischer: Syphilis of the Stomach and Intestines, with Report of Cases, Monograph read at meeting of the Medical Association of Georgia, 1915.

17. Elder: Acute Intestinal Obstruction Caused by Syphilitic Ulceration in the Ileum, Brit. M. J. **1**:1068, 1904.

18. Rosenfeld: Die Syphilitische Dunndarmstenose, Berl. klin. Wchnschr. **39**:No. 307, 1902.

19. Solms: Kasuistische Beitrage zur Pathologie der Magen und Darmkrankheiten, Arch. f. Verdauunzskr. **17**:174, 1911.

20. Goto: Beiträge zur Erworbenen Syphilis der Ileocaecalgegend, Arch. f. Deutsch. Chir. **97**:207, 1912.

on for many years with vague undiagnosed intestinal complaint, as in cases reported by Riedel,[21] and this symptom of long chronicity is pointed to as of some value by Brunner. A few cases, however, are abrupt, complications and death occurring in a short time after the onset of the first symptoms.

Diagnosis.—Depending on the stage of the process and the location of the lesions, the cases of intestinal syphilis must be differentiated from carcinoma, tuberculous enteritis, intestinal obstruction and from adhesive peritonitis with narrowing of the lumen. With our modern laboratory tests and the careful scrutiny of all patients before operation, cases of intestinal syphilis should be somewhat more easily recognizable. The positive Wasermann test, in association with symptoms such as have been described, may be regarded as presumptive evidence at least of syphilis as the cause of the intestinal involvement. In any event, such patients should be given the benefit of vigorous antisyphilitic treatment before other measures are decided on. Without the laboratory aid, the differential diagnosis at the bedside is acknowledged to be difficult, if not impossible. The cases are far too few for any one clinician to have had extensive clinical experience. In this connection it must also be remembered that intestinal syphilis may occur with a negative Wassermann reaction, such as in Fischer's case; and that the positive Wassermann reaction may be the result of syphilis incident to another intestinal condition.

Prognosis.—The progonosis is bad, perhaps largely due to the failure of early diagnosis. There are probably many cases in which intestinal lesions occur in which spontaneous healing with more or less narrowing of the lumen of the intestine occurs, and in which the patients spontaneously recover. Cases, however, with distinct symptoms of ulcerative enteritis usually drag on undiagnosed for so long that serious complications make the prognosis unfavorable.

Treatment.—The treatment is that of general syphilis.[22]

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21. Riedel: Ileus un Folge von etwas aufsergewöhnlichen Strangbildungen, Verwachsungen und Achsendrehungen, sowie von Darmsyphilis, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **2**:483, 1897.

22. In addition to the references already given, the following may be of interest:

Friedreich: Zur Chirurgischen Pathologie von Netz. u. Mesenterium, Langenbeck's Arch. **61**:998, 1900.

Fournier and Lereboullet: Diarrhées Syphilitiques Tertiaire, Gaz. hebd. de méd., N. S. **5**:637, 1900.

Ringel: Syphilitische Darmstenose, Deutsch. med. Wchnschr. **25**:11, 1899.

Weiss: Die Syph. Erkrankungen des Darms., Centralbl. f. d. Grenzgeb. d. Med. u. Chir. **5**:577 and 625, 1902.

CREEPING ERUPTION (LARVA MIGRANS)

REPORT OF CASE CONTRACTED AT WILDWOOD, NEW JERSEY *

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PHILADELPHIA

Creeping eruption, or larva migrans, first described by Lee in 1874, is a relatively rare disease in this country. There are only thirteen references in the literature to the disease occurring in the United States. These cases were reported by Van Harlingen,[1] Stelwagon,[2] Hamburger,[3] Shelmire,[4] Hutchins,[5] Moorhead,[6] Gosman,[7] Haase,[8] Kirby-Smith,[9] Knowles,[10] Gaskill,[11] Whitehouse [12] and by Fox.[13] In many of these reported cases the disease was contracted in the southern part of the United States.

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* From the laboratories of the Graduate School of Medicine of the University of Pennsylvania and the Dermatological Research Laboratories of Philadelphia.

1. Van Harlingen, A.: Report of Three Cases of Creeping Larvae in the Human Skin, Am. J. Med. Sc. **124**:436-441, 1902.

2. Stelwagon, H. W.: A Case of Creeping Eruption, J. Cutan. Dis. **21**:502-504, 1903. A Second Case of Creeping Eruption, ibid. **22**:359-362, 1904.

3. Hamburger, L. P.: Creeping Eruption: Its Relations to Myiasis, J. Cutan. Dis. **22**:217-227, 1904.

4. Shelmire, J. B.: Creeping Eruption; Report of a Case, J. Cutan. Dis. **23**:257-260, 1905.

5. Hutchins, M. B.: Report of Two Cases of Larva Migrans, with Special Reference to the Treatment, J. Cutan. Dis. **34**:270-271, 1906. Another Case of Hyponomoderma (Larva Migrans) Demonstrating the Immediate Curative Effect of Chloroform Injected in Situ, ibid. **36**:521-522, 1908.

6. Moorhead, J. D.: Creeping Disease, Texas Med. News **15**:167-170, 1906.

7. Gosman, G. H. R.: Two Cases of Creeping Eruption, J. A. M. A. **54**: 38-39 (Jan. 1) 1910.

8. Haase, M.: A Case of Larva Migrans, J. Cutan. Dis. **28**:393-394, 1910.

9. Kirby-Smith, J. L.: Extensive Creeping Eruption, New York M. J. **101**: 506-507, 1915.

10. Knowles, F. C.: Creeping Eruption (Larva Migrans) of the Skin, J. A. M. A. **66**:172-177 (Jan. 15) 1916.

11. Gaskill, H. K: Larva Migrans, Trans. Phila. Dermat. Soc., J. Cutan. Dis. **35**:105, 1917.

12. Whitehouse: Larva Migrans, Trans. N. Y. Dermat. Soc., J. Cutan. Dis. **35**:187, 1917.

13. Fox, H.: Larva Migrans, N. Y. Dermat. Trans., J. Cutan. Dis. **35**:608, 1917.

A number of cases of larva migrans have been reported as occurring in various countries, particularly in Russia, in which the disease is most common; it is also common in the Shetland Islands and in Norway. According to Lee, it is common among Arabian children, whose mothers burn the part with a hot wire.

Extensive studies of this disease have been made, notably by Sokolow,[14] Samson,[15] Wosstrikow and Bogrow[16] in Russia, Lenglet and Delaunay,[17] Rille and Riecke[18] and by Darier[19] in France and by Knowles[10] in this country. The disease is due to a larva which, according to most entomologists who have examined skin sections of the

Fig. 1.—Raised erythematous and circinate lesions. The upper portion of the lesion to the right is composed of linear vesicoblebs.

burrow, is in all probability the *Gastropilus haemorroidalis* of the horse. This organism, according to Sokolow,[14] measures from 1 to 1.5 mm. in width, possess ten segments and has hooklets which

14. Sokolow, J. L.: Ueber ein Wurmchen, welches in der epidermoidalen Schicht der menschlichen Haut Gange bildet, Wratsch. 1895, No. 52, p. 1456; abstr. in Arch. f. Dermat. u. Syph. **38**:153, 1897.

15. Samson-Himmelsbjerna, C. V.: Ein Hautmaulwurf, Arch. f. Dermat. u. Syph. **41**:367-372, 1897.

16. Wosstrikow, P. E., and Bogrow, S. L.: Zuraetiologie der "Creeping Disease," Arch. f. Dermat. u. Syph. **90**:323-331, 1908.

17. Lenglet, E., and Delaunay, P.: Un cas de Larva Migrans, Ann. de dermat. et syph. **4**:107-112, 1904.

18. Rille and Riecke: Handbuch der Hautkrankheiten, Mracek **4**:178, 1909.

19. Darier, J.: Cas de Creeping Disease (Larva Migrans) Contracte a Paris, Ann. de dermat. et syph. **6**:113-120, 1920.

are more prominent at the cephalic end. Two suckers are present at the head end and two clublike processes at the tail end. There are two tubes in the interior of the organism.

The disease is most frequently seen in children. The hands or lower parts of the forearm, the feet and lower parts of the legs

Fig. 2.—Typical linear lesions and in addition a purulent dermatitis of the toes.

Fig. 3.—Progress made by the burrow in twenty-four hours. From the black area (silver nitrate stain) on the vertical burrow to the end of the same burrow near the internal maleolus represents the distance traversed by the burrow in twenty-four hours.

are the parts most commonly affected. However, in exceptional cases the disease may involve one or more of the following parts: the face, buttock, genitalia and trunk. Most of the cases reported from Russia occurred in those laboring in the fields. In addition, some

writers have reported the occurrence of the disease at, or some time after, a visit to the seashore. In the case herein reported the eruption appeared during a sojourn at a nearby seashore resort (Wildwood, N. J.).

The prominent cutaneous lesion produced is a burrow which is a raised, erythematous linear lesion, serpiginous and at times circinate in outline. The lesion is most distinct at the extending portion and tends to disappear at the older traversed part. At times the burrow is composed of linear vesicles, or it may start from an erythematous area, as shown in Figure 1. In our case, in addition to presenting the above types of lesions, there was an associated purulent dermatitis, which is sometimes seen in this disease. This involved the toes and interdigital spaces, as shown in Figure 2.

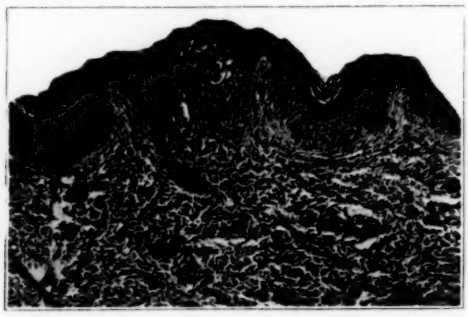

Fig. 4.—Burrow in epiderm.

By diascopy the larva may be seen as a black speck at the advancing end of the burrow. Although we observed the parasite by this means, we were unsuccessful in our attempt to recover it.

In the cases reported by others the burrow advanced from a fraction of an inch to several inches in twenty-four hours. However, exceptional cases have been reported in which the progress in twenty-four hours was 4½ inches (Crocker [20]) and 7 inches (Lee [21]). In Figure 3 is shown the progress made by the burrow in twenty-four hours in the case herein reported.

The case herein reported is of further interest as there were a total of five separate and disconnected burrows. In the majority of cases reported only one burrow was present. However, in the cases reported by Kaposi,[22] Schmidt,[23] and by Knowles,[10] three burrows were

20. Crocker, H. R : Larva Migrans, Diseases of the Skin, Ed. 2, p. 926.

21. Lee, R.: Creeping Eruption, Trans. London Clinical Soc. **8**:44, 1875: ibid. **17**:74, 1884.

22. Kaposi: Wien. med. Wchnschr. **31**:1370, 1881; **32**:248, 1882.

23. Schmidt: Mith. des Vereines der Aerzte in Steiermark **31**:48, 1900.

present. The largest number of burrows reported was in Whitehouse's case in which there were thirty-eight.

The reported duration of the disease is variable; not uncommonly it lasts for some months. The duration of a little over two years in Crocker's [20] case is exceptional. In this patient most of the cutaneous surface was involved.

HISTOPATHOLOGY

In almost all of the histopathologic reports of larva migrans the burrow was present in the upper portion of the epidermis between the corneous layer and the rete. It was in this location that we observed it in all of our cut sections. However, in Darier's case the burrow was present chiefly in the papillary body just beneath the epiderm.

Fig. 5.—High power of same section as Figure 4; in addition some cell infiltrate (mostly eosinophils).

The appearance of the burrow in cut sections is variable, due to its serpiginous course and the plane in which the sections are cut. It is seen as an open or closed passage way of irregular shape. The diameter usually does not exceed 1 mm. The contents are filled with cellular débris.

The larva has been demonstrated in histologic sections by Knowles and more recently by Darier. It is seen as an oval body with spiny processes on its circumference. Knowles observed it in the upper portion of the rete and Darier in the papillary body.

Unless secondary infection occurs, there is little local reaction to the presence of the parasite. In Darier's sections the only changes apparent were the presence of a few migrating polymorphonuclear eosinophils. Likewise in our sections, in addition to the presence of the burrow, the only other change present was the presence of a few polymorphonuclear eosinophils. Sections of the purulent parts were not obtained. However, others have observed changes in the rete consisting of intercellular edema, elongation or broadening of the interpapillary projections with corresponding narrowing or widening, dilated blood vessels with a moderate amount of perivascular cellular infiltration.

TREATMENT

The disease is readily amendable to treatment. Indeed, some writers have observed a spontaneous disappearance of the disease. In the reported cases variable means have been used to destroy the larva at the advancing end of the burrow. Excision of this portion, though attempted, is apt to be as unsuccessful as it is unnecessary. The application of the following substances has been advised: nitric acid, phenol, tincture of iodin, chloroform and 2 per cent. salicylic acid in colloidin, and freezing with ethyl chlorid or carbon dioxid snow. The injection of a weak solution of mercuric chlorid, or cataphoresis of a 0.5 per cent. solution of mercuric chlorid have been used.

In the case herein reported the disease was entirely cured in about five days after the daily application of tincture of iodin to the entire length of the burrow.

REPORT OF A CASE

A girl, aged 6 years, born in America, admitted to the skin clinic of Dr. Sigmund Greenbaum at the Mount Sinai Hospital, had had skin lesions about ten days. Prior to this time she was for some weeks staying at a nearby seashore resort (Wildwood, N. J.) where she frequently played in the sand with bare feet. According to the patient's mother, the skin condition first started as a small vesicle from which extended linear lesions gradually increasing in length.

On the inner and outer sides of each foot, the dorsum of the left foot, and the base of the left ring finger there were disconnected, raised erythematous linear lesions, about 3 mm. in width and about 0.5 mm. in height, varying in length from a few cubic centimeters to about 12 cm. They were serpiginous and circinate in outline. The newly advancing portion was the most conspicuous, and the older traversed lesions were of a dark red shade or remained only as a crust. Part of some of the lesions were composed of linear vesicles and blebs. On puncturing, clear serum was obtained from some lesions and from others, pus.

There was a painful purulent dermatitis involving the second and third toes of the right foot.

PATHOLOGY OF RHUS DERMATITIS

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DEFINITION

Rhus dermatitis caused by *Rhus diversiloba* and *Rhus toxicodendron* is an irritation of the skin caused, in the case of *Rhus toxicodendron*, by Pfaff's toxicodendrol and in the case of *Rhus diversiloba* by lobinol, a nonvolatile substance containing a polyhydrophenol with unsaturated side chains.[1] These toxic substances may or may not have the same chemical composition.

ETIOLOGY

I have shown in preceding papers [2] that the active principle lobinol is neither bacterial nor volatile, and that poisoning occurs from actual contact with the resinous sap of the plant. This contact, however, may result through an intermediary agent, which carries the sap, such as particles of soot in smoke, clothing, cordwood, croquet balls and shoes.

AVENUES OF INFECTION

A suitable channel must be present so that the pathogenic lobinol may enter the body and produce its specific disease. Such avenues of infection are the cutaneous surfaces, the respiratory, alimentary and genito-urinary tracts and the conjunctival surfaces. The entrance of lobinol into the respiratory system is rare, although instances have been known in which the inhalation of smoke from the burning plant has caused infection. Alimentary infection is more common, as many people, seeking to gain immunity to the poison, chew the leaves and swallow the juice. There is one case on record in which a person thoughtlessly chewed a portion of the stem of the plant and developed severe symptoms. The external genitals, especially in the male, represent a frequent seat of the disease. This is due, in many cases, to handling of the penis and scrotum by infected hands during micturition. The genitals of the female are seldom involved. Instances may also be cited in which conjunctivitis has been the result of touching the eyes with hands on which the resinous sap was present.

The Sebaceous Glands.—The sebaceous glands are sometimes the seat of rhus dermatitis, as is demonstrated by the accumulation of

1. McNair, James B.: J. Am. Chem. Soc. **43**:159 (Jan.) 1921.
2. McNair, James B.: J. Infect. Dis. **19**:419, 1916; J. Am. Chem. Soc. **43**: 159 (Jan.) 1921.

leukocytes around them in the diseased tissue. These glands are chiefly associated with the hair follicles, but they also occur independently and in those parts of the skin in which the hairs are wanting, as on the lips, angles of the mouth, prepuce and labia minora. Those portions of the body which have the largest sebaceous glands are frequently the seat of rhus dermatitis, i. e., the nose, the cheeks, the eyelids (meibomian glands), the scrotum and the anal region. The liability to poisoning in these places may not be due primarily to the presence of the glands, but may possibly be explained by the prevalent thinness of the skin in these parts and the liability of the glands to poisoning on account of their position. Large sebaceous glands are also found

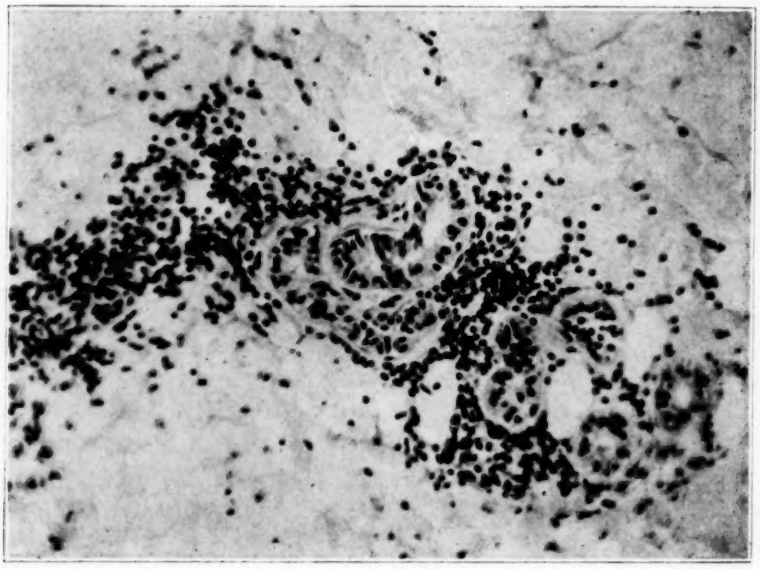

Fig. 1.—Section of skin affected by poison oak, showing infiltration of leukocytes around a sudoriparous gland; × 190.

on the areola of the nipple, the mons veneris and the labia majora. The areola of the nipple and the labia majora are susceptible and are sometimes the seat of the disease (Busey,[3] 1873, and others), but because of the protected position of the nipple and the fact that the vulva is seldom touched by the hands, neither the nipple nor the vulva become affected often. The skin of the mons veneris is effectively protected by its dense covering of hair.

The amount and quality of the sebaceous secretion varies considerably at different times in the same person, in different persons and

3. Busey: Am. J. M. Sc. **17**:436, 1873.

on different parts of the body. Usually the secretion is more abundant where the glands are largest and most numerous. Abnormal or excessive secretion is most commonly noted between the ages of 15 and 25, when the sebaceous glands are especially active. Variation in this secretion may possibly constitute a partial index of variation in susceptibility.

Many persons assert that they are more susceptible to the poison when they are perspiring; this is stated by Kalm [4] (1748), Horsfield [5] (1798), Schwalbe [6] (1903), Thudichum [7] (1903), Hadden [8] (1906), Ward [9] (1908) and Lindley [10] (1908). At such times the skin temperature is raised, the peripheral blood vessels are dilated and the sebaceous secretion is increased. Increased oiliness of the skin is also caused by a warm external temperature. Under these conditions the increased amount of oil on the surface of the skin would constitute an increase in the lipoid solvents for lobinol, and consequently susceptibility might be increased.

This diminution in immunity would be the result if increased perspiration did not take place. The conditions which tend to cause a large sebaceous secretion also tend to increase the amount of perspiration. As lobinol is insoluble in the perspiration, any increase in this secretion would tend to lessen susceptibility.

Perhaps the apparent increase in susceptibility during perspiration is explained by the removal of protective clothing, such as the removal of coats and the rolling up of sleeves. Thus the skin area directly liable to contact with the plant and its poison is increased.

The Sweat Glands.—The sweat glands may also become infected by rhus poison, as is evidenced by the large number of leukocytes surrounding them in the diseased skin. These glands occur within the integument of all parts of the body, with the exception of that covering the red margins of the lips, the inner surface of the prepuce and the glans penis. They are especially numerous in the palms and soles and fewest on the back and buttocks. While the sweat glands are most numerous on the palms and soles, rhus dermatitis, as a rule, occurs only on palms whose stratum corneum is thin, as, for instance, those of a woman. The prepuce, on the other hand, in which these

4. Kalm, P.: Travels Into North America, Ed. 2 **1**:53, 60 to 64 and 139; **2**:20, 1772.

5. Horsfield: Abst. Med. Repts. **2**:186, 1805.

6. Schwalbe, C.: München. med. Wchnschr. **49**:1616, 1902; Med. Rec. **63**: 855, 1903.

7. Thudichum, C. L.: The Alkaloidal Clinic **10**:829, 1903.

8. Hadden, A.: Med. Rev. of Rev. **12**:764, 1906.

9. Ward, Ralph F.: New York M. J. **88**:1224 (Dec. 26) 1908.

10. Lindley, J. S.: Am. J. Dermat. & Gen.-Urin. Dis. **12**:342, 1908.

glands are absent, is sometimes the seat of rhus dermatitis; in one case it became the seat of fibrinous infiltration.

Misled by Maisch's statement that the poison was an acid, von Adelung [11] (1912) made a series of observations on sweat reactions as determined by litmus paper in order to find out whether the acidity or the alkalinity of the sweat bears any relation to susceptibility to the poison. A number of sweat reactions were taken and recorded, each person being asked whether he was susceptible to the poison. In each class—acid, alkaline and neutral—there were some susceptible and some immune persons. Among them was one person with strongly acid sweat, who was extremely susceptible, but there was another equally susceptible whose reaction was strongly alkaline; so that no relation to sweat reaction could be determined, even though account was taken of the physiologic change of reaction during exercise.

As alkalies accelerate the oxidation of lobinol (McNair [12] 1917), and thus diminish its toxicity, it might be expected that persons with alkaline perspiration would be less susceptible. However, even in cases of markedly alkaline perspiration, the alkalinity is of comparatively low degree, and therefore would affect the poison little.

Hair Follicles.—The hair follicles are frequently channels for rhus infection, as is shown by the multitude of leukocytes located near them in skin affected by rhus poison. The hairs are present over almost the entire body, and rhus dermatitis seldom affects those regions in which the growth is sufficiently long to constitute a complete covering.

Skin Surface.—Not only does the poison enter the skin by way of the cutaneous glands and hair follicles, but it may gain entrance through the surface of the skin itself, as is evidenced by the abnormal accumulation of leukocytes in parts of the corium foreign to glands and hair follicles. The variety and distribution of the glands and hair follicles play a smaller part in the transmission of lobinol than the thickness and condition of the various layers of the skin.

Before the poison can enter the epithelium it is liable to undergo a certain amount of oxidation and loss of toxic properties. This loss of toxicity, however, is relatively slight, as such oxidation ordinarily proceeds slowly. A certain amount of localized destruction of epithelium somewhat similar to that due to carbolic acid and other phenols probably takes place before the poison is transmitted inward. In its inward transmission the poison must first pass through the stratum corneum. In so doing some of it is left behind by adsorption and absorption. The thickness of the stratum corneum is, therefore, one

11. Von Adelung, E.: Arch. Int. Med. **11**:148, 1913; Interstate M. J. **20**:139, 1913; Proc. Soc. Exper. Biol. & Med. **10**:61, 1912-1913.

12. McNair, James B.: J. Infect. Dis. **20**:485, 1917.

important factor in the susceptibility of various persons and the various parts of the body to attack by lobinol. The epidermis varies in thickness from 0.08 to 0.10 mm. It is thus easy to explain how the primary lesion may not be at the point on the skin which first came in contact with the resinous sap. For instance, the palms may have the poison on them and yet not be affected with dermatitis. They may transfer

Fig. 2.—Section of skin affected by poison oak, showing sebaceous gland and infiltration of leukocytes; × 100.

the poison to parts of the body with thinner and more sensitive skin, such as the scrotum and penis or ears and eyelids, and the latter parts may be the first to give evidence of inflammation. Rhus dermatitis, too, is much more often found on the flexor surfaces where the skin is thin than on the extensor surfaces, where it is thick.

Before the poison reaches the stratum germinativum it must pass either through the walls of living cells or between them. As, however, the intercellular substance is reduced to a minimum in the epithelial tissues, the cells generally lie in almost immediate apposition. It is evident, therefore, that the poison can probably pass as easily through the cell membrane as between the cells. Microscopic evidence appears to support this view. The cell membrane in these cells is an inconspicuous structure. There is no direct chemical or microscopic evidence to show the composition of the animal cell membrane, but by observations on its behavior when the cells are in various solutions, facts have

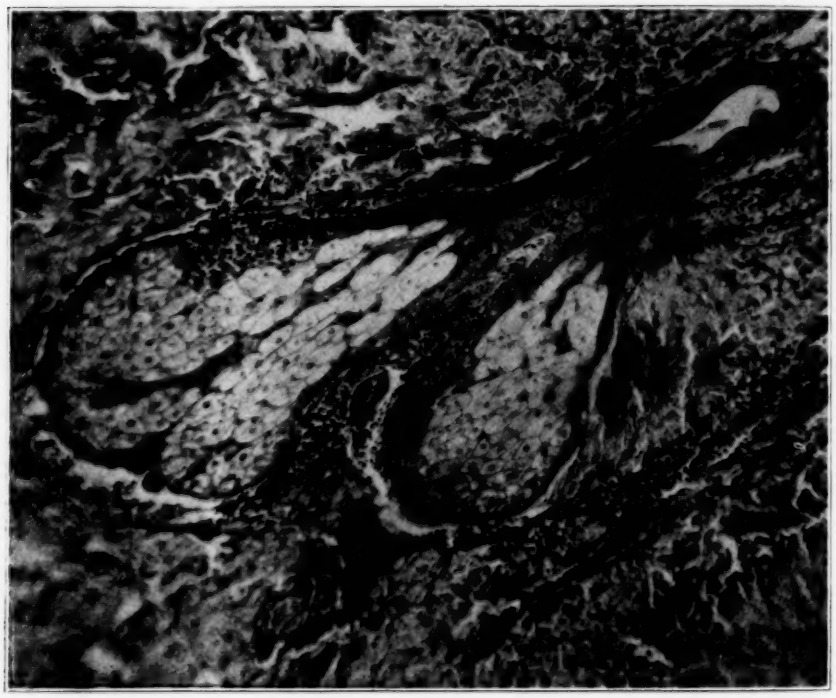

Fig. 3.—Section of skin affected by poison oak, showing sebaceous gland and infiltration of leukocytes; × 100.

been collected indicating that lecithin and cholesterol, and probably the allied fat-like bodies, "protagon" and cerebrin, are prominent constituents. The substances that diffuse through most cell walls are just the substances that are soluble in or dissolve these lipoids, that is, alcohol, chloroform, ether, etc., and it is probable that the anesthetic effects of many of these substances depend in some way on their fat-dissolving power and the large proportion of lipoids in nerve cells.[13]

13. Overton and Meyer, Hypothesis, Jahresb. f. wissenschaftl. Botanik **34**: 669, 1900; Arch. f. exper. Path. u. Pharmakol. **42**:109, 1899.

As lobinol is more soluble in lipoids and lipoid solvents, it might be expected to penetrate the cell wall easily and it is probable that the intense irritating effect of this poison similarly depends on its solubility and consequent penetrability of the nerve cells.

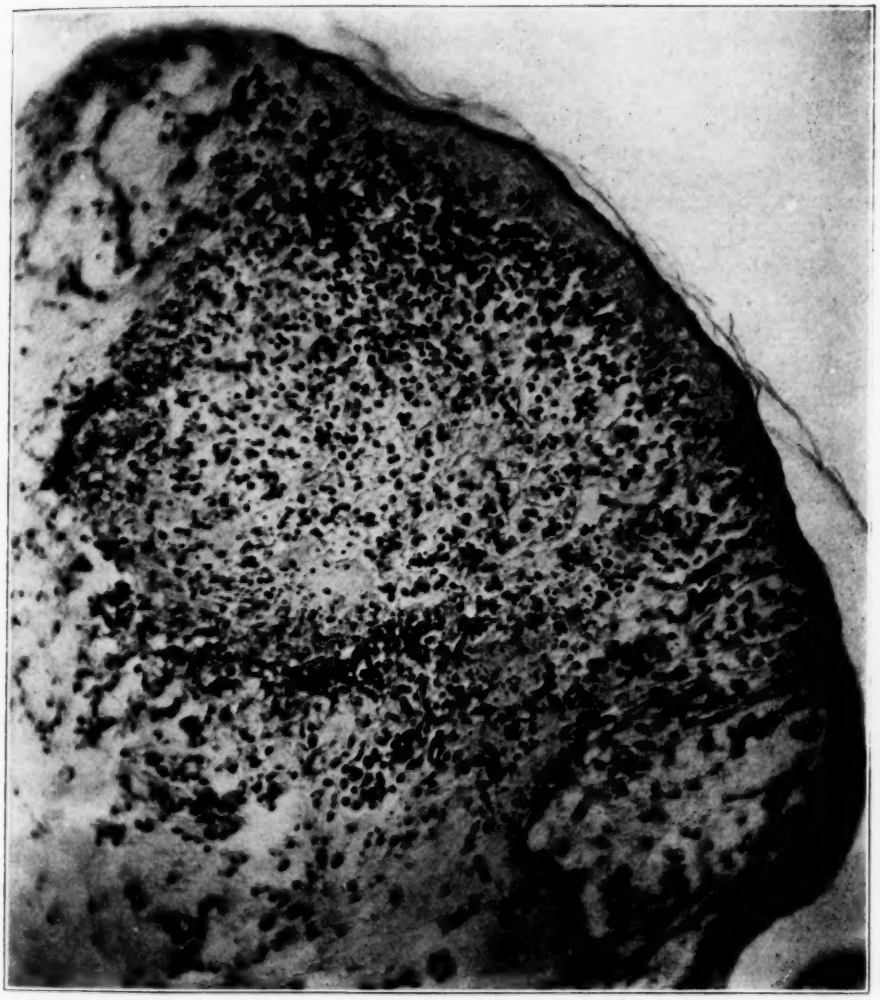

Fig. 4.—Section of skin affected by poison oak, showing vesicle, infiltration of leukocytes and slowly diffusible character of the poison.

The fact must not be overlooked, however, that lobinol is diffused through the skin slowly; this phenomenon is due to the period of latency.* Besides lipoids, the cell membrane is considered to be partially made of protein. The cell wall, therefore, is probably a "mosaic" structure, some of the blocks being lipoids or lipoid compounds, and

others protein without lipoids. Robertson [14] suggests that there is a superficial film of concentrated protein about the cells underlaid by a discontinuous lipoid layer. Some such structure is evidently necessary to permit the entrance of the common foodstuffs into the cell, such as water, sugar, amino acids and salts which are not lipoid soluble. Lobinol may have a coagulating effect on the protein lining of the cell in such a way as to retard its permeability. This same coagulating function, however, might, by its corrosive action, tend to make entrance to the cell easier for the poison.

The contents of the cell may play an equally important part in retarding or accelerating permeability. In this connection, osmosis, surface tension and diffusion must be considered.

Of the constituents of the cytoplasm of the cell, the lipoids would tend to dissolve lobinol, the proteins to absorb it, and probably the glycogen and sulphates to change chemically and combine with it and render it less toxic, as is true of other phenols in the body. The amount of glycogen is a source of glycuronic acid and the amount of sulphates normally in the epidermal cells of a person may possibly have a great deal to do in physiologically neutralizing and retarding the penetration of the poison and thus serve as a partial index of immunity.

REACTIONS AND DEFENSIVE SUBSTANCES IN THE BODY

The variety of reactions and the variety of defensive substances in the body are, according to present knowledge, remarkably small in number. The reactions are: oxidation and reduction, hydration and dehydration, and perhaps simple addition (that is, methylation). The chief known protective substances are the alkalies of the blood, proteins, hydrogen sulphid, sulphuric acid, glycocoll, urea, cystein, bile acids, glycuronic acid and acetic acid. Of these substances we would expect lobinol, which is a polyhydrophenol with unsaturated side chains, to react and become less organotropic with glycuronic acid and sulphuric acid by forming a phenol glycyronate and a phenol sulphate. Whether or not other substances would form defensive chemical compounds with lobinol, would depend on the nature of its unsaturated side chains which are at present uninvestigated.

The susceptibility of lobinol to oxidation must not be overlooked. There may be oxydases, as there are in the nuclei, which may tend to render the poison harmless.

Not only is this disease caused by the direct action of lobinol, but perhaps also by the indirect chemical change in the body cells induced

14. Robertson: Biol. Chem. **4**:1, 1908.

by altered cell metabolism. The substances formed may be called body toxins and may be similar to those produced in superficial burns.[15] The evidence for such intoxication is not altogether similar to that of burns as no delirium, hemoglobinuria, vomiting or bloody diarrhea has been demonstrated in superficial rhus dermatitis. On the other hand, in severe cases of rhus dermatitis there is albuminuria, which may be caused by the partial elimination of these hypothetical poisons by the kidneys. Rhus albuminuria, on the other hand, may be due to the direct action of lobinol, as it has been found that when rhus sap has been introduced per os in a rabbit, albuminuria results

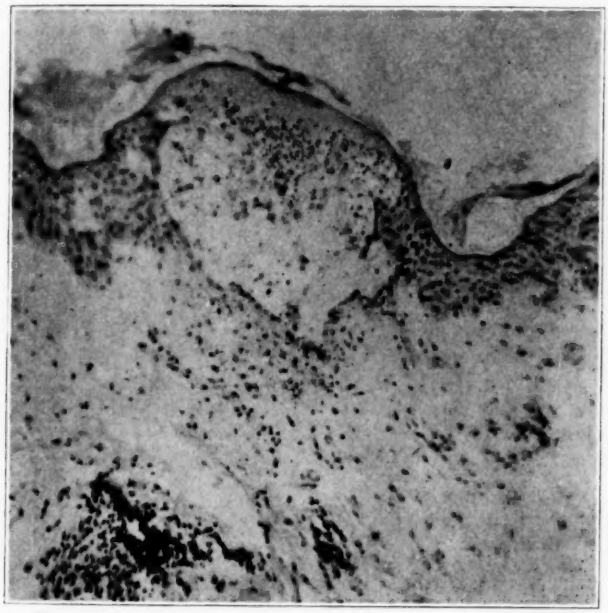

Fig. 5.—Section of skin affected by poison oak, showing vesicle, infiltration of leukocytes and slowly diffusible character of the poison; × 190.

(McNair[16] 1916). Similarly, Pfaff,[17] by the introduction of toxicodendrol per os in a rabbit, caused albuminuria. Some cases of rhus albuminuria, however, may be due to latent nephritis excited by the increased work thrown on the kidney following the loss of the excretory function of large areas of skin. An examination of forty-nine severe bed cases of rhus dermatitis showed that thirty-two, or 65.3 per cent.,

15. Articles on this subject by Bardeen may be found in Johns Hopkins Hosp. Repts. **7:** 1898. Wells: ibid., p. 562.

16. McNair, James B.: J. Infect. Dis. **19:**419, 1916.

17. Pfaff, Franz: J. Exper. Med. **2:**181, 1897.

were negative with respect to albumin; and seventeen, or 34.6 per cent., were positive. One of the patients having albuminuria developed and recovered from acute nephritis simultaneously with dermatitis.

LATENCY OF RHUS DERMATITIS

The prevalence of *Rhus diversiloba* on the campus of the University of Pennsylvania and the possibility of indirect contact with the poison make the exact period of latency questionable.

In experimenting with *Rhus toxicodendron* in 1795, Fontana,[18] found the period of latency to be three, four and six days. Van Mons,[19] in 1797, found it to be from eight to ten days. Horsfield,[20] in 1798, stated that the period of latency varied from a few hours to several days. Other writers have also given varying limits, for instance: Dakin,[21] (1829) one to three days; Busey [3] (1873), seven days; White [22] (1873), generally less than forty-eight hours, but sometimes five days; Park [23] (1879) from a few hours to a few days, generally from thirty-six to forty-eight hours; Cundell-Juler [24] (1883), about twenty-four hours; Morrow [25] (1887), from several hours to four or more days; Pfaff [17] (1897), in experiments found the latent period to be as long as four days; Conner [26] (1907), often within twenty-four hours. It is thus evident that the dermatitis caused by *Rhus toxicodendron* has a latent period similar in length to that caused by *Rhus diversiloba*.

Leukocytosis is an accompaniment of the severer cases of poison oak dermatitis. The severity of the leukocytosis seems to vary directly with the size of the area involved and the severity of the infection. For instance, in a case in which the face, hands, arms and chest were severely affected, a blood count showed 31,600 leukocytes; in a milder case, in which only one forearm was affected, 14,000 leukocytes were found. Blood counts frequently indicated the presence of more than 12,000 leukocytes to the cubic millimeter. In the marked increase in leukocytes in twelve cases examined, there seemed to be no dispro-

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18. Fontana, Felix: Treatise on the Venom of the Viper; on the American Poisons, etc., Trans. by J. Skinner, Ed. 2, **2**:181, 1795.

19. Van Mons, J. B.: Actes la société de médecine, chirurgie et pharmacie **1**: Pt. 2, p. 13, 1797.

20. Horsfield, Thomas: In C. Caldwell's "Medical Theses," 1805, p. 113; Inaugural Dissertation on Rhus, Univ. of Pa., 1798.

21. Dakin, R.: Am. J. M. Sc. **4**:98, 1829.

22. White, J. C.: New York M. J. **17**:225, 1873; Boston M. & S. J. **93**: 265, 1875.

23. Park, R.: Arch. Dermat. **5**:227, 1879.

24. Cundell-Juler: The Cincinnati Lancet and Clinic, N. S. **11**:73, 1883.

25. Morrow, P. A.: Drug Eruptions, 1887, p. 167.

26. Conner, J. J.: Am. J. Dermat. & Gen.-Urin. Dis. **11**:368, 1907.

portionate change in the polymorphonuclear leukocytes with no eosinophilia. A microscopic examination of sections of the diseased human skin, however, disclosed a predominance of mononuclear leukocytes. It is suggested, therefore, that either in the parts of the skin affected a mononuclear leukocytosis results while the systemic leukocytosis is disproportionate, or else the character of the leukocytosis varies in

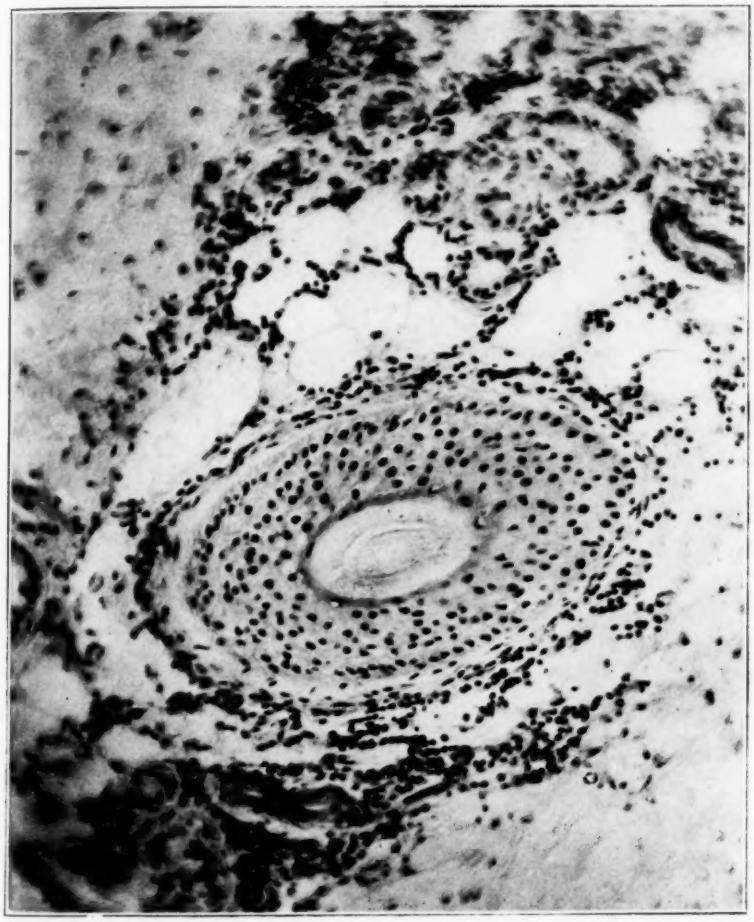

Fig. 6.—Section of skin affected by poison oak, showing infiltration of leukocytes around hair follicle; × 190.

different stages of the disease. The leukocytosis thus produced tends, among other things, to oxidize the poison by the contained oxydases of these cells.

The blood stream, as well as the lymphatics, contributes its leukocytes and consequent oxidative power. The erythrocytes contribute

hemoglobin, the iron of which has the power to combine with lobinol. Likewise the blood brings glucose which, on its conversion into glycuronic acid, probably has power to combine with and lessen the noxious properties of lobinol.

$$\underset{\text{glucose}}{CH_2OH-(CHOH)_4\overset{O}{C}-H-O_2} = \underset{\text{glycuronic acid}}{COOH-(CHOH)_4\overset{O}{C}-H-H_2O}$$

LATENCY OF RHUS DERMATITIS IN DISPENSARY PATIENTS

Date and Hour of Exposure	Irritation First Noticed	Parts Affected	Name	Approximate Period of Latency in Days
Unknown	1/25/19	Lower half of left cheek.....	Dorothy C.	
1/25/19 p. m.	1/26/19	Face, chest, neck, arm.....	T. Jean J.	1
1/26/19 p. m.	1/27/19	Neck, face, left arm.....	Eva S. P.	1
1/26/19 p. m.	1/28/19	Chin and neck.....	Dorothy H. ...	2
1/26/19 a. m.	1/29/19	Face and scrotum.....	Geo. E. W.	3
1/26/19	1/28/19	Face.....	John F. D.	2
1/26/19	1/29/19	Face and scrotum, thighs...	Wm. W. B.	3
1/26/19	2/ 1/19	Arms, legs.....	Helen G. H. ...	6
?	2/ 4/19	Face and neck.....	Alice L.	?
1/26/19	2/ 1/19	Forearms.....	Karl J. M.	6
1/26/19	2/ 3/19	Body.....	Sherman R. B.	8
2/ 1/19	2/ 3/19	Wrists and hands.....	Perry K.	2
2/ 1/19	2/ 3/19	Wrists and legs.....	Franck H. R. ..	2
1/31/19 m.	2/ 6/19	Face, arms.....	Geo. A. P.	6
2/ 2/19	2/ 5/19	Forearms.....	Howard M. B.	3
2/ 2/19	2/ 8/19	Face and legs.....	Anne H.	6
2/ 2/19	About 1 week later; spread gradually; Feb. 14 extensive	Legs, wrist, face, neck.....	Amy J. A.	6
2/ 9/19	2/ 9/19	Right arm.....	Lyell H. P.	1
2/16/19	2/17/19	Face.....	Kathleen G. L.	1

There is reason to believe that rhus poison is not transmitted by the body fluids because first, lobinol is insoluble in water (McNair,[16] 1916), in horse blood serum, in physiologically normal salt solution and in Ringer's solution; and, secondly, the vesicular exudate of rhus dermatitis is nontoxic even when well rubbed into the scratched skin of a sensitive person. White, in 1873, opened the vesicles on his wrist, one of twenty-four, another of eight hours' duration, and their clear and colorless contents were applied and scratched into the epidermis on the wrist of a man who was especially sensitive to the poison of *Rhus toxicodendron*, as he had suffered two attacks of the poison that summer (1873) and had had many severe attacks during past seasons as a result of contact with *Rhus toxicodendron*. The results were wholly negative. Bigelow [27] reports that Pierson inoculated with the serum from vesicles on the second day, and with the discharge from the later stage, but without effect. The freest handling of parts affected in all stages of the efflorescence fails to transfer the disease to the hands of another. Third, if the skin is inoculated with the poisonous sap of *Rhus diversiloba* and the spot covered with a watch glass or zinc oxid

27. Bigelow, J.: American Medical Botany **1**:96, 1817; **3**:20, 1820.

plaster, the resulting dermatitis will not spread, but will remain confined to the locality on which the sap was placed.

The apparent spreading, that is, the successive appearance of rhus dermatitis on different areas of the body, generally reaches its maximum during the period of invasion. This spreading may be due to (1) the direct transference of the poison itself by the fingernails or hands from one part of the body to another, or to new areas from the clothes or hair; (2) reflex irritation; (3) contiguity of tissue, and (4) varying durations of latency for the different skin surfaces on the body (varying with the respective thicknesses of their stratum corneum, chemical and physical differences in the skin, etc.).

THE EVOLUTION OF THE DISEASE IN EXTERNAL POISONING

The features of rhus dermatitis are the shortness of its course and, typically, its differentiation into stages. The following stages, in their proper sequence, are recognized generally in acute rhus dermatitis:

Stage of Infection.—This is the period of time occupied by rhus poison in getting in firm contact with the outer surface of the skin.

Stage of Latency.—This is the period of time in which the rhus poison is diffusing through and reacting with the skin up to the point of producing symptoms. Generally this stage is an appreciably limited one and its duration lasts from about twelve hours to five days. The amount of poison entering the skin influences more or less the length of this stage, within certain limits. The length of this stage must be influenced by various other factors: stratum corneum, the thickness and composition of the cell walls, the variety and amounts of the cell contents, such as glycogen or glucose, as a source of glycuronic acid; sulphuric acid or forms of sulphur that might be available to form lobinol sulphate; lipoids, which might aid by their solvent power in diffusion or absorption of lobinol; water, which might hinder the diffusion of lobinol; protein, which might adsorb or absorb lobinol, oxidases, etc.

Stage of Prodromes.—Vague symptoms of skin irritation now appear about the points of entrance of the poison. It is evident at this time that the poison is sufficiently active to produce moderate symptoms, but none as yet characteristic of the disease. They may appear in connection with some weak part of the system, such as the eyes, face and scrotum, thus establishing a local erythema. This stage is usually of fairly definite length, but this depends on the same general factors as the preceding stage.

Stage of Outbreak.—In this stage the symptoms characteristic of the disease make themselves manifest. Two types are recognized, namely: (1) a frank or sudden outbreak and (2) insidious or gradual

outbreak. The former is, doubtless, due to a sudden and marked intoxication, while the latter is the result of a more gradual action. When the frank outbreak takes place, naturally this stage is well separated from the prodromal, but the two stages gradually merge one into the other in the insidious attacks.

One of several factors may cause a frank outbreak: 1. The poison may suddenly penetrate the tissues, owing to a greater presence of lobinol solvents, weak resistance of the tissues or very thin skin. 2. The poison may have gradually accumulated in a given focus owing to defective drainage into the interior, and then, by the extension of the infectious focus into looser tissue, a large quantity of lobinol is suddenly absorbed. 3. Some sudden cause may be operable in reducing the vitality of the person so that a given volume of poison has an extreme and sudden effect.

The primary effect of the poison is to stimulate one or more functions of the system, while the secondary or final result is to depress or pervert such functions subsequent to the production of degenerative and necrotic changes. The nervous and circulatory activities receive especial stimuli. The effect on the circulatory system consists of increased cardiac force and vasoconstriction, that is, a rise of blood pressure. In the frank outbreak there is not only a suddenness of onset of the symptoms, but also a marked severity of the same.

Certain effects are noted in the several parts of the body in the most severe cases:

The pulmonary area is congested. Dyspnea may be induced by nervous influences and by a reduction in the air space of the lungs due to congestion. A sense of discomfort may be noted in the thorax. Bronchial congestion may cause some transudation and a cough may appear with watery sputum.

The cerebral area is so closely associated with the large vascular trunks that it shares in the congestion. A feeling of fulness, together with more or less headache and throbbing of the temporal arteries, is likely to develop. Congestion of the conjunctivae, tinnitus aurium and disturbances of vision are likewise referable to congestion. The face being so closely related, is usually flushed, even though dermatitis may not involve it. With this there is often epistaxis and sore throat. Delirium sometimes occurs (Horsfield, 1798).

In the peripheral area the temperature of the skin is raised. In the inflammatory process the capillaries immediately surrounding the point or points of contact of the irritant become enlarged and produce a visible hyperemia, thus establishing a local erythema. This, if it has not proceeded further than the prodromal stage, would perhaps affect only a minute area and form a small red point, a

macule, or extend over a considerable area, and present a uniform and extensive field of redness. It might be fugitive, lasting but a few minutes, or continue for hours or days and finally disappear without the production of any other apparent tissue change. But an erythema cannot exist for any considerable time without a slowing of the current of circulation in the enlarged capillaries, followed by edema. This serious transudation is in some degree inseparable from an erythema of more than evanescent duration.

Sometimes these changes are limited to circumscribed areas. Under peculiar forms of irritation an erythema is rapidly excited, which is followed by a sudden edema, so violent as to distend the involved portions of the skin in the form of abrupt elevations with sharply defined borders, and to compress in turn the capillaries of such areas so as to occlude them and thus produce lesions characterized by flat, strikingly white prominences, which are generally surrounded by a halo of erythema (wheals). They may exist for only a few minutes, or for one or more hours, but they are always of brief duration. The capillaries in the stage of involution begin to absorb the effused serum, the swelling sinks down, the redness returns to the area, and finally the hyperemia disappears. The whole process is one of the most sudden and striking exhibitions of morbid action to which the skin is liable, and is a frequent phenomenon in dermatitis venenata.

As has been previously pointed out, the disease is not contagious and cannot be transferred from one area of the skin to another by the blood, nor by the serum escaping from broken vesicles on the surface of the body. Nevertheless, the inflammation may spread in two ways, by contiguity of tissue, and, according to Blackwood, by reflex irritation. Blackwood,[28] by inciting friction at a part as yet apparently unaffected by rhus dermatitis, transferred the disorder to that locality when the experiment was made during the height of the disease. That the transfer was not merely inoculated by the fingernails in cases which he had carefully watched was proved by allowing the scratching to be done by a person not affected.

Stage of Maximum Symptoms.—This is in reality but a continuation of the preceding stage, and is not clearly defined therefrom. If the hyperemic state of the skin be prolonged beyond a brief duration, other changes ensue besides the escape of serum; the leukocytes of the blood escape through the vessels and add to the previous swelling or edema.

The leukocytes are deposited in the upper layers of the corium about the superior capillary plexus in vast numbers. Owing to their

28. Blackwood, W. R. D.: Some Thoughts on Rhus Poisoning, Philadelphia Med. Times **10**:618, 1880.

presence, the skin offers a firmer resistance to pressure than that caused by the simple edema, and presents in time a decided thickening. This change may affect considerable areas uniformly, producing a general thickening and elevation of the part affected, or may concentrate itself within the papillae especially, the exudation from their vascular loops causing them to enlarge either singly or in groups, and forcing them with their epidermal coverings above the general surface of the integument in the form of sharply pointed or hemispherical elevations, red in color, and varying in size from that of a pinhead to that of a small pea. This condition may last a few days, or much longer, and slowly disappear as the effused elements, serum and blood cells, are reabsorbed by the vessels, and leave no later sign of its existence, or at most a slight scale. On the other hand, the epithelial covering of the tip of the softened tissues may be easily removed by violence, and thus the elongated papillae be exposed, allowing the contents of the papule to escape, or the enlarged capillaries may themselves be ruptured; in either case, an excoriation and crust are formed, thus complicating the process of involution.

If the tip of one of these inflammatory papules is carefully pricked with a needle so as not to open one of its blood vessels, a minute quantity of clear serum or lymph will exude, showing the abundant presence of fluid in it. Under the continuance or greater intensity of the inflammatory process this is poured out with such force, or in such quantity, as to tear apart the soft plastic cells in the lower layers of the rete, thus forming vesicles or blebs.

Vesicles, however, may not be the highest stage in this progressive formation of surface lesions in rhus dermatitis. If it advances, they are transformed into pustules. These also may disappear by the absorption of their contents, or, if they are ruptured, the process of involution will complete itself beneath a crust or scab. Pustules, however, may form as such without a preceding vesicular stage. They are generally deeper seated than the superficial forms of inflammation thus far considered, and are often seated primarily about the glandular structures, or even in a subcutaneous tissue.

Such are the primary lesions of acute dermatitis. They may be only progressive steps of the inflammatory process, marked by certain well defined stages—the hyperemic macule, papule, vesicle and pustule; or any one of them may arise independently as such, and disappear without undergoing further evolutionary change. Several or all of them may be present at the same time, or any one of them may represent the whole process in any case.

At the beginning of this stage, stimulation of the functions occurs, together with congestion and febrile disturbances. The pyrexia is in

all probability more nervous than toxic, as lobinol is usually neutralized in the skin before it reaches the systemic circulation.

Increase of metabolic activity and an increase of body temperature are the most striking phenomena of the complex symptoms of fever. An increase in cardiac action is seen, and for each degree (Fahrenheit) in rise of temperature there is usually an increase of ten beats per minute. There is an increase in respiratory action so that for every four beats of the heart in excess there is added one respiration. There is an increase in blood pressure, nervous, muscular and glandular activity of the intestinal tract. There is a slight afternoon and evening rise of temperature, as was observed by Burgess [29] in 1880. As maximum temperatures, Prichard [30] (1891) noticed a temperature of 103 F. accompanied by a pulse rate of 112. Lindley, in writing a résumé of the disease among California Indians, gave a temperature range in severe cases of from 102 to 105 F. The highest temperature registered in forty-five severe cases at the University of California was 99.5 F. Febrile symptoms present, which involve the alimentary system, are a coated tongue, loss of appetite, nausea and vomiting. The latter symptoms have been noted by Dunmire [31] (1881) and Ward.

Diarrhea, which is often present, may be an expression of excessive muscular and glandular activity of the intestinal tract. Constipation sometimes accompanies this disease, as was observed by Farquhar [32] in 1888 and by Ward in 1908. Both constipation and diarrhea have been recorded by Lindley. Constipation, which is more apt to occur in the later stages, may possibly be taken as an index of the weakness induced by degenerative changes. The volume of urine may vary during the course of the fever, as it is dependent on the filtrative capacity of the tissues, and this in turn is dependent on the amount of blood actively moving through the kidneys. A moderate increase of pressure accelerating the blood current would tend to increase the urinary output, but a marked increase of pressure retards the flow of the blood, and suppression of urine results. Suppression may occur also in conditions of low blood pressure. During this stage of the disease albuminuria sometimes occurs.

Insomnia is a frequent symptom. Swelling of the neighboring lymph glands has been observed by Baldwin and by McNair (1916).

Amphibolic Stage.—This is the sequel of the preceding stage, and is not clearly differentiated therefrom. It is also known as the waver-

29. Burgess, T. J. W.: Canad. J. M. Sc. **5**:327, 1880; Pharmacol. J. **11**:858, 1881.

30. Prichard, A. W.: Bristol Med.-Chir. J. **9**:22, 1891.

31. Dunmire, G. B.: Philadelphia Med. Times **12**:636, 1881-1882.

32. Farquhar, C.: Univ. Med. Mag. **1**:640, 1888-1889.

ing stage, for at this time the symptoms are often changeable and there may be a sudden rise or fall of temperature. This stage probably represents the interaction of the body processes and the influences of the poison. If at this time the protective powers of the body are sufficient to combat successfully the action of the poison, a reduction of temperature will occur and the disease will decline. Conversely, if the poison and its effects prove stronger, the patient finally succumbs to the process.

I have found records of only three cases of external poisoning by rhus which terminated fatally. In one, the victim was a boy 6 years old, who died within three weeks, (White, 1873). In another case [33] a woman, 69 years old, exposed in July to *Rhus toxicodendron,* died after two months of severe suffering. Payne,[34] in 1894, reported the case of a man who had slept in a wood in which rhus was growing, who was so severely poisoned that he died from the effects.

An intermediate condition may infrequently develop, in which a chronic disease is the sequel. This is brought about through infection of the skin lesions with pyogenic bacteria (Treille,[35] 1904) or through a continuance of the degenerative changes and the development of fibrosis, as is well exemplified in a case of fibrous infiltration of the prepuce reported by Seabrook [36] in 1891.

Stage of Decline.—This may be of *two types*: A rapid disappearance of symptoms, decline by "crisis"; or a slow disappearance, decline by "lysis." The symptoms which were directly due to the poison disappear early, while those incident to the inflammatory and metabolic disturbances are the last to disappear.

The secondary lesions which occur in rhus dermatitis are the changes in the primary forms of eruption, either incidental to the decline of the inflammatory process, or the result of accidental interference with their natural course.

Stage of Convalescence.—The disease itself has now disappeared, and this stage represents the attempt at restitution of the body structures. The length of this period and the ability of the system to recover completely from the effects of the disease are due to the vitality of the body tissues, which are dependent on age, nutrition, sanitary surroundings, etc. One must keep in mind the possibility of development of other diseases during this period on account of the depression of vitality.

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33. Boston M. & S. J., 1897.
34. Payne, G. F.: Am. Pharmaceutical Assn. Proc. **42**:135, 1894.
35. Treille, G.: Marseille Med. **41**:149 and 161, 1904.
36. Seabrook, H. H.: New York M. J. **54**:51, 1891.

There may be some reasons, however, for the belief that certain diseases of the skin sometimes follow rhus poisoning. Many patients have ascribed development of various of these affections to such a cause. They say, "I always had a healthy skin until I was poisoned by ivy, and afterward it was affected in this way," after an interval of weeks, months, or it may be, years. There are good grounds for the belief that in some cases the incidence of conditions of the skin is influenced by rhus poisoning. This, however, does not authorize the conclusion that they are directly caused by its action, or are in any way specific in their character. There is no evidence of a continuance or renewal of the operation of the poison after its primary impression on the skin has exhausted itself. The characteristic features of the cutaneous manifestations of this period do not repeat themselves in the subsequent conditions, which may be fairly referred to the prior poisoning as an indirect cause. They are usually forms of ordinary eczema. White has seen the following conditions develop subsequent to such attacks of rhus poisoning, which have occurred under his personal observation:

1. A young lady, whose face had been severely poisoned in October, after a rapid recovery, the following January had an attack of facial eczema.

2. Another young lady, after severe poisoning of the face and hands, in a few months had an outbreak of facial acne.

3. An old man, whose hands a short time before had been poisoned, had, immediately following his recovery, an eruption of eczema covering his arms.

4. A young man, after being severely poisoned on the face, was immediately attacked by acne which lasted a long time.

5. A man of middle age was poisoned on the hands and forearms. A few months afterward he had an obstinate subacute eczema of the legs. Bigelow [27] stated that Pierson, who was severely poisoned while assisting him in the experiments with the juice of *Rhus venenata,* had eczema of the hands for a year afterward.

In all these cases, it is to be understood that the secondary condition mentioned occurred for the first time in the patient's history and after the specific primary manifestations of the poisoning had disappeared. It is impossible to say that the same conditions might not have occurred when they did if the patients had not been poisoned previously, because they are of such frequent occurrence; but, considering that eczema and acne are pathologic conditions of the skin such as might readily follow the disturbance in its tissues and glands necessarily consequent on severe poisoning by rhus, it should not be considered illogical to

refer the appearance of these conditions under such circumstances to the morbid impression the poison may have left on them. These, however, are the only possible sequelae in my experience that might be so interpreted (White, 1873).

In other medical literature the following sequelae are given: lingering ulcers (Horsfield, 1798), swelling of tongue and ulceration of the mouth (Horsfield, 1798), enlargement of the lymphatic glands (Horsfield, 1798), itching (Horsfield, 1798), boils (Horsfield, 1798; Beringer,[37] 1896; Baldwin, 1887), scars (Lindley, 1908); eczema and furunculosis (Ward, 1908); hypersensitivity to skin irritants to which the patient was previously immune, that is, common ivy and sunlight (Stirling,[38] 1913); pyogenic infection (Trielle, 1904).

During convalescence there may be a recurrence of rhus dermatitis; this may be called a relapse. Relapses may be caused not only by direct contact with the plant but also by contact with its poisonous sap, which may be on gloves (Frost,[39] 1826; Hunt,[40] 1897), croquet balls (Hunt), the hands of another (Maisch,[41] 1866; Busey; Planchon;[42] Cantrell,[43] 1891; Hunt), firewood (Barnes, 1886; McNair, 1916), clothing (Cundell, 1883; Kunz,[44] 1883; Walker,[45] 1891; Balch,[46] 1906; Lindley, 1908; McNair, 1917), tools (Planchon; Hunt; von Adelung,[47] 1913), and on knife handles (Hunt). Walker, in 1916, noticed that pressed rhus leaves from across the Atlantic when used as a table decoration caused dermatitis. Bogue,[48] in 1894, noticed that an herbarium specimen of *Rhus toxicodendron,* which had been in the herbarium three years, caused dermatitis. Lindley wrote of a white woman, who was serving in the capacity of boys' matron at the Indian school in northern California, who became so frequently infected through handling the clothing of the boys under her charge that she was forced to seek a transfer to another school.

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There are many persons who believe in recurrent rhus dermatitis without reexposure (Horsfield, 1798; Parrish,[49] 1851; Busey; Beringer; Nicholson,[50] 1899). This recurrence is usually considered as being annual and as occurring in the summer.

It is difficult to prove that recurrent rhus dermatitis occurs without reexposure to the poisonous sap. Several of the so-called recurrences have been caused by rhus (Nicholson); other so-called recurrences have been caused by other irritant plants such as, for instance, cypripedium (Hurlbut,[51] 1869). It is difficult to diagnose correctly a case of rhus dermatitis, as eczema and other eruptions may be confused with this condition.

The assistance of Dr. Allen J. Smith has enabled me to contribute this paper. Through the kindness of Dr. R. T. Legge, I have been permitted to utilize statistics from the University of California.

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DERMATOLOGIC ETYMOLOGY

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Many physicians, who in school and college have devoted years to laborious study of Latin and Greek, have allowed their knowledge of these languages to become too rusty for practical use. They recognize a few Greek words as old friends, though not always at first glance, and many Latin words are quite familiar. They omit most of the Latin quotations which they encounter in reading, and they are often unable to translate phrases even in common use. There are some who, like the writer, have at times felt a laudable desire to brush up their linguistic knowledge and have struggled again with the Latin grammar or the Greek Testament, but most of us have soon concluded that more pleasure might be obtained from some other amusement. For all who wish to refresh or add to their presumably meager knowledge of these languages, the surest and most attractive means of accomplishing this purpose may be found in the study of etymology. While this study may be regarded as merely a linguistic specialty and one not intended to make a thorough scholar, it will give a more practical knowledge of Greek and Latin than will the reading of Xenophon or Caesar, and at the same time it will impart a keener appreciation of the structure of the English language.

When the majority of college graduates in professional life admit that they know little of the classic languages to which they devoted so much time, it is not strange that those whose early scholastic opportunities have been limited have practically no acquaintance with them. It is among the latter that we most frequently find a strong desire to acquire such knowledge, if only the way to do so can be made clear. With little spare time at their disposal, the drudgery of mastering even a small portion of the Latin or Greek grammar is out of the question. But the study of etymology will ensure a certain acquaintance with these languages which is highly desirable, and while it may not make scholars of its devotees, it will afford them both pleasure and profit. Etymology can be made a delightful hobby. To make a hobby of the Latin or the Greek grammar is almost unthinkable.

The origin of familiar English words is often surprising. For example, the word absurd is derived from two Latin words, *ab*, from, *surdus*, deaf. An absurd answer is one to be expected from a deaf person who misunderstood the question. The word acrobat is derived from two Greek words—*ἄκρος*, akros, high (or *ἄκρον*, akron, a point) and *βάινειν*, bainein, to go or walk. An acrobat is one who walks on

his toes, stands on his head, climbs aloft or does some similar stunt. The familiar word stunt, not yet found in all dictionaries, is neither Latin nor Greek in its origin but probably came from the Bowery, and is gradually working its way into a class of highly proper words which once were considered as vulgar slang. We call a certain kind of a dog a terrier, without thinking, perhaps, that he got his name from digging in the ground (from the L. *terra,* earth). The fragrant little garden flower known as a pink is commonly supposed to be so named on account of its color, but pinks are often white (just as blackberries are red when they are green), and the fact is that this flower was called a pink because the border of its petals is cut into or pinked. On the other hand, the carnation, from the Latin *caro,* genitive, *carnis,* flesh, was evidently named on account of its color, the original carnation having probably been the color of a rare beefsteak.

Many other interesting derivations might be given to show that a study of the origin of words not only gives us a better knowledge of their precise meaning, but also makes us familiar with many words in the languages from which they are derived. Our word language comes from the Latin word *lingua,* the tongue. While most readers know this, there are perhaps a few who have never thought of it. The word derive comes from the Latin words *de,* from, and *rivus,* a river. Just as water used to turn a mill wheel is diverted from a swift flowing stream, many of the words we use are de-rived from some other language. The word etymology, which means the origin of words, is derived from the Greek ἔτυμος, etymos, true and λογία, logia, a discourse or treatise. Most technical words have a Greek or Latin origin, but, limiting ourselves to dermatologic names, it may be of interest to consider the source of a few in order that when we use them we may do so with a better understanding.

The word dermatology is derived from the Greek δέρμα, derma, genitive, dermatos, skin, ⟨ δέρειν, derein, to flay (akin to our verb to tear) + λογία, logia, a discourse, ⟨λόγος, logos, word, ⟨ λέγειν, legein, to speak. Every reader knows what dermatology means and is doubtless familiar with its etymology, but how many of us know the origin of most of the dermatologic terms in daily use? A study of some of these may not only be of interest but may also give a clearer idea of their precise meaning and for those of us who have forgotten much of the little Latin and less Greek that we learned at school and college may serve to brighten up our rusty knowledge.

A cutaneous (L. *cutaneus,* ⟨*cutis,* skin) disease running a short course is called acute (L. *acutus,* sharp, ⟨*acuere,* to sharpen). When it persists, it is called chronic (Gr. χρόνος, chronos, time), or inveterate. In other words, it is a cutaneous veteran (L. *veteranus,* ⟨*vetus,* genitive, *veteris,* old). It is sometimes contagious or caused by contact with another case (L. *contactus,* perfect participle of *contingere,* to touch), and sometimes said to be infectious (L. *infectus,* perfect participle of *inficere,* to put in).

It often has a period of incubation (L. *in*, on, + *cubare*, to lie down), of efflorescence (L., *efflorescere*, to bloom, < *flos*, genitive, *floris*, a flower) and of decline (L., *declinare*, to bend down), and is sometimes epidemic (Gr., ἐπι, epi, upon, + δῆμος, demos, a people). It is either congenital (L., *congenitus*, < *con*, together and *genitus*, born, past participle of *gignere*, to beget) or acquired (L., *acquirire*, < *ad*, to, + *quaerere*, to seek) and may be idiopathic (Gr., ἴδιος, idios, one's own, + πάθος, pathos, affection, < παθεῖν, pathein, second aorist of πάσχειν, to suffer), symptomatic (Gr., σύμπτωμα, symptoma, < συμπίπτειν, sympiptein, to fall in with), traumatic (Gr., τραῦμα, trauma, genitive, traumatos, a wound) or factitious (L., *facere*, to make).

A cutaneous disease may be pruriginous (L., *prurigo*, genitive, *pruriginis*, < *pruire*, to itch), become at times exacerbated (L., *exacerbatus*, present participle of *exacerbare*, to sour, < *acer*, acrid or sharp) and is liable to relapse (L., *re*, back, + *lapsus*, perfect participle of *labi*, to slide) or to recur (L., *re* + *currere*, to run). Its lesions (L., *lesiones*, < *laesum*, supine of *laedere*, to injure) may be either primary (L., *primus*, first) or secondary (L., secundus, second, < *sequi*, to follow).

According to form, it may be punctate (L., *punctatus*, < *punctum*, a point, < *pungere*, to prick); guttate (L., *gutta*, a drop); nummular (L., *nummulus*, a coin); annular (L. *annulus*, a ring); gyrate (Gr., γῦρος, gyros, a circle), circumscribed (L., *circum*, around, + *scribere*, to write); marginate (L., *margo*, a border); linear (L., *linea*, a line or cord, < *linum*, flax) or diffuse (L., *diffusus*, < *dis*, apart, + *fundere*, to pour).

According to appearance, it may be erythematous (Gr., ἐρυθρός, erythros, red); squamous (L., *squama*, a scale); nodular (L., *nodus*, a knot); rupial (Gr., ῥύπος, rypos, filth); excoriated (L., *ex*, out, + *corium*, the skin); exfoliative (L., *ex*, from, + *folium*, a leaf); multiple (L., *multiplex*, manifold, < *multus*, many, and *plicare*, to fold); or disseminate (L., *dis*, apart, and *seminare*, to sow, < *semen*, seed).

As to duration, the disease may be ephemeral (Gr., ἐπί, epi, upon, for, + ἡμέρα, hemera, a day) or persistent (L., *per*, through, + *sistere*, to stand). It may be hyperemic (Gr., ὑπέρ, hyper, above or excessive, and αἷμα, haima, blood); inflammatory (L., *in*, + *flamma*, a flame); atrophic (Gr., ἀ, alpha privative, meaning not, + τροφή, trophe, food, < τρέφειν, trephein, to nourish); neurotic (Gr., νεῦρον, neuron, a nerve); or parasitic (Gr., παρά, para, beside + σῖτος, sitos, grain or food).

Let us now take the index of a dermatologic textbook and select a few words whose origin may be of interest. Some of these are partly Latin and partly Greek in their composition, and a few home-made names are not entirely free from criticism. It is, however, a difficult matter to change a name in general use, and it is often inadvisable to do so.

GLOSSARY OF TERMS EMPLOYED IN DERMATOLOGY

Abscess (L., *abscessus*, a departure, perfect participle of *abscedere*, to go away). The old idea was that evil humors of the body gathered in a mass and departed through suppuration. Apostem (Gr., ἀπόστημα, apostema, < ἀπό, apo, away, + ἵστημι, histemi, I stand) was an old synonym. Our word apostasy is from the same source.

Acanthosis (Gr., ἄκανθα, akantha, a thorn or prickle, + osis, a termination meaning disease); A. nigricans (L., to be blackish, < *niger*, black).

Acarus (Gr., ἀκαρής, acares, short, < alpha privative, meaning not, + κείρειν, keirein, to cut). An acarus was a hair too short to cut; hence a mite or anything small. Acarophobia is from acarus and Gr., φόβος, phobos, fear. Both name and disease are modern.

Achromia (Gr., alpha privative + χρῶμα, chroma, color).

Acne (Gr., ακνη, acne, < ἀκή, ake, a point). This suggests the usual conical form of the lesions. It is possible that the disease was originally called ἀκμή, acme, meaning the height or prime of life. It has been claimed, though doubtless erroneously, that the name acne is derived from alpha privative and κνάειν, knaein, to itch, the disease being essentially nonpruritic.

Acrochordon (Gr., acro < ἄκρον, akron, top or extremity, + χορδή, chorde, a cord or string).

Acrodynia (Gr., acro, + ὀδύνη, odyne, pain). Of this disease, characterized by pain in the extremities and sometimes known as dengue, Hyde says: "The popular name 'dandy fever' is supposed to be derived from the oddity in the gait of sufferers from the disorder."

Actinomyces (Gr., ἀκτίς, aktis, genitive, aktinos, a ray, + μύκες, mykes, a fungus or excrescence).

Adenoma (Gr., ἀδήν, aden, a gland, + oma, a termination meaning a tumor).

Ainhum (African), a word adopted by the Portuguese.

Albinismus (L., *albus*, white, + ismus, a termination suggesting a condition, doctrine or theory).

Alopecia (Gr., ἀλώπηξ, alopex, a fox). Foxes seem to be particularly subject to the disease. Bald was originally "balled" and suggested the resemblance between a hairless head and a billiard ball.

Angioma (Gr., ἀγγεῖον, angeion, a vessel, + oma, a tumor).

Anthrax (Gr., ἄνθραξ, anthrax, a burning coal).

Atheroma (Gr., ἀθήρη, athere, pulp, + oma).

Bacillus (L., *bacillum*, a little rod or staff).

Bacterium (NL., *bacterium*, < Gr., βακτήριον, bacterion, a little stick, < βάκτρον, bactron, a staff).

Bactericide (NL., *bacterium*, + L., *cida*, a killer, < *cædere*, to cut down or kill).

Balneotherapy (L., *balneum*, a bath, + Gr., θεραπεία, therapeia, medical treatment).

Boil. This old Engliish word was originally spelled byle or bile and is still so pronounced by those who are apt to speak of the inflamed skin as "bealing." Confusion with the verb "to boil" has changed its pronunciation. "To boil or bubble" is from the Latin *bullire*, and from this comes the word *bulla*, a bubble or blister.

Bromidrosis (Gr., βρῶμος, bromos, a stench + ἱδρώς, hidros, sweat + osis, a termination meaning disease).

Cancer (L., *cancer*, a crab). The English word canker and French chancre are from the same source.

Carbuncle (L., *carbunculus*, diminutive of *carbo*, a live coal).

Carcinoma (Gr., καρκίνος, karkinos, a crab).

Caustic (Gr., καυστικός, kaustikos, corrosive, < καίειν, kaiein, to burn).

Cheilitis (Gr., χείλος, cheilos, lip, + itis, a termination meaning inflammation).
Cheiropompholyx (Gr., χείρ, cheir, hand, + πομφόλυξ, pompholyx, a bubble or blister).
Chilblain, a blain caused by chill; literally, a cold sore.
Chloasma (Gr., χλοάζειν, chloazein, to become green, < χλόε, chloe, verdure).
Chromidrosis (Gr., χρῶμα, chroma, color, + ἱδρώς, hidros, sweat, + osis).
Clinic (Gr., κλίνη, kline, a couch, < κλίνειν, klinein, to bend or lean).
Comedo (L., *comedo,* a glutton, < *comedere,* to eat up or consume).
Corium (L., *corium,* skin or leather). From this word comes the French word *cuir,* meaning leather, and from this comes our word cuirass, a chest protector originally made of leather. From corium we also get our word quarry. Not the quarry from which square stones are cut, for this comes from the Latin word *quadratus* (quadratus-quaratus-quarry) but the quarry or prey of the hunter, of which the corium or skin is taken and the rest thrown away.

Dermatalgia (Gr., δέρμα, skin, + ἄλγος, algos, pain).
Dermatitis (Gr., δέρμα, genitive, dermatos, + itis); D. ambustionis (L., *ambustus,* perfect participle of *ambuere,* > *ambi,* around and *urere,* to burn); D. congelationis (L., *congelatus,* present particple of *congelare,* to congeal, < *con,* together, + *gelare,* to freeze); D. venenata (L., *venenatus,* perfect participle of *venenare,* to poison).
Dysidrosis (Gr., δυς, dys, hard or difficult, + ἱδρώς, hidros, sweat).

Ecthyma (Gr., ἔκθυμα, ecthyma, < ἐκθύειν, ekthuein, to break out).
Eczema (Gr., ἐκ, + ζεῖν, zein, to boil), a boiling out or eruption. The Greek word ξεστός, zestos (from zein, to boil), akin to which are our words zest and yeast, means hot or fervent (L., *fervens-ferventis,* pres. part. of *fervere,* to boil). The common name salt-rheum (OS. *sal,* salt, + Gr., ῥεῦμα, rheuma, a flux, <ῥεῖν, rhein, to flow) expresses the same idea. Flowing from the same source are the words catarrh, diarrhea and rhythm.
Electrode (Gr., ἤλεκτρον, electron, amber, + ὁδός, hodos, a way).
Electrolysis (Gr., ἤλεκτρον, + λύσις, lysis, a loosening, < λύειν, luein, to loosen).
Elephantiasis (Gr., ἐλέφας, elephas-phantos, an elephant).
Epidermis (Gr., ἐπί, epi, upon, + δέρμα, derma, the skin).
Ephelis (Gr., epi, upon, toward, + ἥλιος, helios, the sun).
Eruption (L., *eruptio,* gen., *onis,* < *e,* out, + *ruptus,* perfect participle of *rumpere,* to break).
Erythema (Gr., ἐρύθημα, a blush, < ἐρυθρός, erythros, red); E. diutinum (L., *diutinus,* lasting, < *diu,* a long time); E. intertrigo (L., *inter,* between + *tritus,* perfect participle of *terere,* to rub).
Erysipelas (Gr., erythros or erusi, red or ruddy, + πελλίς, pellis, skin or pelt).
Esthiomene (Gr., ἐσθιομένε, < εσθίειν, esthiein, to eat or corrode).
Exanthem (Gr., ἐξάνθημα, exanthema, < ἐξανθεῖν, exanthein, to bloom, < ἔξ, ex + ἄνθος, anthos, flower).
Excrescence (L., *ex,* out, + *crescens,* pres. part. of *crescere,* to grow).

Favus (L., *favus,* a honeycomb).
Filiform (L., *filum,* a thread, + *forma,* shape). Piliform is from *pilus,* a hair.
Folliculitis (L., *folliculus,* a little bag, + itis). F. decalvans (L., *de,* away + *calvans,* pres. part. of *calvare,* to make bald, < *calvus,* bald).
Frambesia (French, *framboise,* a raspberry).

Furuncle (L., *furunculus,* a little thief, diminutive of *fur,* a thief). The relation between theft and boils is not very apparent.

Gangrene (Gr., γάγγραινα, gangraina, an eating sore, < γραίνειν, grainein, to gnaw).

Glanders (L., *glandula,* a gland, diminutive of *glans,* an acorn).

Glycerine (Gr., γλυκερός, glykeros, sweet).

Gumma (Gr., κόμμι, kommi, gum).

Hemorrhage (L., *hemorrhagia,* Gr., αἷμα, haima, blood, + ῥαγ, rhag, stem of ῥηγνύναι, regnunai, to burst).

Herpes (Gr., ἕρπειν, herpein, to creep).

Hydroa (Gr., ὕδωρ, hydor, water). When written hidroa it is from ἱδρώς, hidros, sweat.

Hypertrichosis (Gr., ὑπέρ, hyper, over or excessive, + θρίξ, thrix, gen., trichos, a hair, + osis).

Hypertrophy (Gr., hyper, + τροφή, trophe, nourishment, < τρέφειν trephein, to nourish).

Ichthyosis (Gr., ἰχθύς, ichthus, a fish, + osis). I. serpentina (L., *serpens,* gen., *serpentis,* a serpent, < *serpere,* to creep); I. hystrix (Gr., ὕστριξ, a porcupine, < ὗς, hys, a hog, + θρίξ, thrix, a hair).

Impetigo (L., *impetere,* to attack).

Icterus (Gr., ἴκτερος). This is the name also of a yellowish green bird, looking at which was reputed to cure the disease and thereby kill the bird. The word jaundice is from the French word jaune, meaning yellow.

Keloid (Gr., χηλή, chele, a crab's claw, + εἶδος, eidos, like). On etymologic grounds "cheloid" would be the proper spelling, although a derivation from the Greek word κήλη, kele, a tumor, has been claimed.

Keratosis (Gr., κέρας, keras, gen., keratos, a horn, + osis). A "corn" is from the Latin *cornu,* a horn.

Kerion (Gr., κηρός, keros, wax); a honeycomb.

Kraurosis (Gr., κραῦρος, krauros, brittle, + osis).

Lentigo (L., *lentigo,* pl., *lentigines,* lentil-shaped spots or freckles, < lens or lenticula, a lentil which has the shape of a double convex lens).

Lepothrix (Gr., λέπος, lepos, a scale, + θρίξ, thrix, a hair).

Leptothrix (Gr., λεπτός, leptos, thin, + θρίξ).

Leprosy (Gr., λεπρός, lepros, scaly, < λέπειν, lepein, to strip). The leper of the middle ages may have had psoriasis, syphilis or some disease other than true leprosy since, until recent years, the disease has usually passed unrecognized. Leprosy as described by early English medical writers and biblical commentators was ordinary psoriasis. The Greeks called leprosy "elephantiasis" and applied the name "lepra" to psoriasis. When the septuagint translation of the Hebrew scriptures was made, the word "tsarath" or leprosy was erroneously called lepra instead of elephantiasis. The ten lepers (δέκα λεπροί) healed by Jesus were psoriatics and not lepers. Otherwise Luke, a physician, in his gospel account would have used the term "elephantiasis" in place of lepra. In our English version of the New Testament the Greek word "lepra" should be translated psoriasis and not leprosy.

Leukoplakia (Gr., λευκός, leukos, white, + πλάξ, plax, a patch); L., buccalis (L., *bucca*, the cheek). A buckle is so called from its being curved like an inflated cheek.

Lichen (Gr., λειχήν, leichen, tree-moss).

Liniment (LL., *linimentum*, < *linire*, to smear).

Lotion (L., *lotio*, gen., *onis*, < *lotum*, supine of *lavare*, to wash).

Lues Venerea (L., lues, a plague, + venerea, pertaining to Venus or sexual intercourse).

Lupus (L., *lupus*, a wolf).

Lymphangioma (L., *lympha*, lymph, + Gr., ἀγγεῖον, angeion, a vessel, + oma).

Melanosis (Gr., μέλας, melas, gen., melanos, black, + osis).

Microscope (Gr., μικρός, mikros, small, + σκοπεῖν, skopein, to view).

Microsporon (Gr., mikros, + σπόρος, sporos, seed, < σπείρειν, speirein, to sow).

Milium (L., *milium*, millet, a small seed).

Molluscum (L., *molluscus*, < *mollis*, soft).

Monilethrix (L., *monile*, a necklace or string of pearls, + Gr., θρίξ, thrix, a hair).

Mycosis (Gr., μύκης, mykes, a fungus, + osis).

Myoma (Gr., μῦς, mus, a muscle, + oma).

Myxedema (Gr., μύξα, myxa, mucus, + οἴδημα, oidema, a swelling, < οἰδεῖν, oidein, to swell).

Nævus (L., *nævus*, a blemish or birthmark, < *natus*, born).

Nævus araneus (Gr., αράχνης, arachnes, L., *araneus*, a spider).

Noma (Gr., νομή, nome, a spreading sore, < νέμειν, nemein, to graze).

Onychauxis (Gr., ὄνυξ, onyx, gen., onychos, a nail, + αὔξειν, auxein, to increase).

Onychogryposis (Gr., onyx, and γρύπωσις, gryposis, a curving). There is no Greek word "gryphosis." Years ago some doctor or printer misspelled the word and the error appears in every modern textbook.

Parakeratosis (Gr., παρά, para, beside or like, + κέρας, keras, -atos, a horn, + osis).

Pediculosis (L., *pediculus*, a louse, + osis). *Pediculus* is a diminutive of *pes*, foot, whence comes our word pedicle.

Peliosis (Gr., πελιός, pelios, livid).

Pellagra (Italian pelle, skin, + agro, rough).

Pemphigus (Gr., πέμφιξ, pemphix, gen., pemphigos, a bubble).

Phagedena (Gr., φαγεῖν, phagein, to eat).

Pityriasis (Gr., πίτυρον, pityron, bran).

Porokeratosis (Gr., πόρος, poros, a pore or πῶρος, poros, callus, + keratosis).

Porrigo (L., *pro*, before, + *rego*, < *regere*, to rule or stretch out). Something that spreads.

Prurigo, Pruritus (L., *prurire*, to itch).

Psoriasis (Gr., ψώρα, psora, scabies or scurvy).

Purpura (L., *purpura*, < Gr., πορφύρα, porphyra, purple).

Rhinophyma (Gr., ῥίς, rhis, gen., rhinos, the nose, + φῦμα, phyma, a tumor).

Rhinoscleroma (Gr., rhino, + σκληρός, skleros, hard, + oma).

Rodent Ulcer (L., *rodens-rodentis*, pres. part. of *rodere*, to gnaw, + *ulcus-u ceris*, a sore).

Rosacea (L., *rosaceus*, rosy, < *rosa*, a rose). The plant called rosemary by Shakespeare means literally sea-dew (L., *rosmarinus*, <*ros*, dew, + *marinus*, marine) and has nothing to do with a rose or with Mary.

Rupia (Gr., ῥύπος, rypos, filth).

Sarcoma (Gr., σάρξ, sarx, gen., sarkos, flesh, + -oma).

Scabies (L., *scabere*, to scratch). Scab, shave, shaft, and shabby are cognate words.

Scleroderma (Gr., σκληρός, skleros, hard, + δέρμα, derma, skin).

Scrofula (L., *scrofa*, a sow).

Shingles (L., *cingulum*, a girdle). The word shingles meaning those on a roof comes from *scindere*, to split.

Seborrhea (L., *sebum*, tallow, + Gr., ῥεῖν, rhein, to flow).

Sphaceloderma (Gr., σφάκελος, sphakelos, gangrene, + derma).

Staphylococcus (Gr., σταφυλή, staphyle, a bunch of grapes, + κόκκος, kokkos, seed). The word streptococcus comes from the Gr. στρεπτός, streptos, bent.

Sudamen (L., pl., *sudamena*, < *sudare*, to sweat). Sudoriferous means sweat-bearing, < *ferre*, to bear. Sudorific means sweat-making, < *facere*, to make. Sudoriparous means sweat-producing, < *parere*, to bring forth. Suds, sodden and seethe are cognate words.

Sycosis (Gr., σῦκον, sykon, a fig).

Syphilis (Gr., σῦς, sys, a hog, + φίλος, philos, loving). Syphilus was the name of a shepherd in a poem by Fracastor, published in 1530.

Syringomyelia (Gr., σῦριγξ, συριγγός, syringx, syringos, a pipe, + μυελός, marrow).

Thyroid (Gr., θυρεοειδής, thyreoeides, < θυρεός, thyreos, an oblong shield, < θύρα thyra, a door, + εἶδος, eidos, form).

Tinea (L., a worm or moth); T. imbricata (tiled or shingled, < imbrex, a curved tile).

Trichorhexis (Gr., θρίξ, thrix, gen., trichos, a hair, + ῥῆξις, rhexis, a breaking).

Trichophyton (Gr., θρίξ, thrix, gen., trichos, a hair, + φυτόν, phyton, a plant).

Tuberculosis (L., *tuberculum*, diminutive of *tuber*, a knob or swelling, + osis).

Ulcer (Gr., ἕλκος, helkos; L., *ulcus*, gen., *ulceris*).

Ulerythema (Gr., οὐλή, oyle, a scar, + erythema, redness).

Unguentum (L., *unguere*, to smear). Salve is derived from the Anglo-Saxon word *sealf*.

Urticaria (L., *urtica*, a nettle).

Vaccinia (L., *vaccinus*, pertaining to a *vacca* or cow).

Variola (L., *varius*, various or spotted). Varicella is a diminutive, vari(ola)-c-ella.

Verruca (L., a height or excrescence; hence a wart).

Vitiligo (L., *vitium*, a blemish or *vitulus*, a calf, which is often spotted or piebald).

Xanthoma (Gr., ξανθός, xanthos, yellow, + oma).

Xeroderma (Gr., ξηρός, xeros, dry, + δέρμα, skin).

Zona (L., a girdle).

Zoster (Gr., ζωστήρ, zoster, a girdle or zone).

The foregoing may possibly sound somewhat pedagogical (Gr., παῖς, pais, a boy, + ἄγειν, agein, to lead). The first pedagogues were servants or pages who led boys to school and elsewhere. It may even sound pedantic (same root). But, dropping etymology, the writer would apologize for any errors that may be noted; and since he has taken much pleasure and added not a little to his knowledge in compiling these derivations, he sincerely hopes that others may find the subject of interest, even if it should not add as greatly to their pleasure and profit.

XXII.—PICRIC ACID IN THE TREATMENT OF SEVERE EPIDERMOPHYTON INFECTION

RICHARD S. WEISS, M.D.
ST. LOUIS

The summer of 1920 was noteworthy for the large number of cases of epidermophyton infection observed in both clinical and private practice. Moreover, many of the cases were of such severity as to produce disability. The epidemiology of the disease has never, to my knowledge, been worked out, and I cannot suggest any reason for this increase in the number and severity of the cases.

The disability caused by the cases of severe foot disease led me to try several drugs in the hope of shortening the course of the disease, and, as a result of this investigation, I can strongly recommend the application of a saturated solution of picric acid in water. I have not been able to find any reference to the use of picric acid in epidermophyton infection, hence this report.

The type of case in which this solution appears to be of great service is the severe foot infection, particularly the case with extreme involvement of the toes, interdigital spaces and the sulcus underneath the toes, accompanied by maceration of the epithelium, superficial ulceration and a large amount of secondary infection. The solution is of little or no use in the dry cases of the disease occasionally seen on the feet and frequently seen on the hands.

The following method of application seems to be the most successful: Thin layers of cotton are placed between, under and above the toes. The cotton is then moistened with the picric acid solution, and a light muslin bandage applied. The solution is poured on the cotton three times a day and the cotton is changed daily. The patient is kept at rest. In two or three days, the swelling and inflammation subside to a large extent, and the macerated epithelium hardens, later flaking off and revealing underneath fairly normal skin, which, however, is tender and delicate. The picric applications are then discontinued. At this stage sometimes a virtual cure is attained and all that is necessary is a careful daily foot-bath followed by the liberal application of boric acid, zinc oxid, calamine dusting powder between

* Studies, observations and reports from the dermatological department of the Barnard Free Skin and Cancer Hospital and the Washington University School of Medicine, St. Louis, Mo., U. S. A., service of Drs. M. F. Engman and William H. Mook.

the toes and inside the socks and shoes. The more severe cases should be treated with Whitfield's ointment or pyrogallic acid salicylic acid combinations after the picric treatment.

The only disadvantage of this treatment is the yellow stain caused by the picric solution, and this is of little moment.

I do not recommend the use of this solution for more than a week at the longest because of the danger of poisoning.

A COMPARISON OF THE WASSERMANN AND SACHS-GEORGI REACTIONS IN THE SEROLOGIC DIAGNOSIS OF SYPHILIS *

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Since the introduction of the Wassermann test as a serologic method of diagnosis in syphilis in 1906, the reaction has been the subject of extensive and intensive study, particularly as concerns its mechanism and the standardization of its technic.

The fact that we are still in doubt as to an exact and definite understanding of the mechanism whereby the reaction occurs; that the exact nature of the body whose presence in syphilitic serum gives rise to the reaction is still a matter of uncertainty; and, above all, the clear and evident necessity for a thorough understanding of the principles of the test, in so far as they are known, and of the many niceties of technic which must be mastered and understood before one is competent to perform and interpret the test—all these have given an added impetus to numerous attempts to simplify the reaction and render it available to those not having special laboratory training.

Prominent among attempts at serologic "short-cuts" in the diagnosis of syphilis are the various precipitin or floccule-forming reactions which have been proposed as substitutes for the Wassermann test. The majority of these have been based on the presence of lipoidal bodies and globulins in a colloid state in syphilitic serums, which, when brought into contact with similar substances under varying conditions and in varying quantities, are precipitated as a result of a reaction probably of an electrolytic nature.

Various substances have been utilized as precipitating agents in such reactions. Fornet used the serum of paretic patients; Klausner used distilled water; Porges and Meier used solutions of sodium glycocholate, and Herman and Perutz used cholesterinized glycocholate solutions, while McDonagh [1] used a mixture of acetic anhydrate, glacial acetic acid and saturated aqueous solution of ammonium sulphate. None of these reactions, when compared with parallel Wassermann tests, have corresponded in accuracy or delicacy and all have been dis-

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* From the Laboratories of the Pittsburgh Hospital.

1. McDonagh: Brit. J. Dermat. **28**:114 (April-June) 1916.

carded. Recently, however, prominence has been given in foreign journals to a new precipitin reaction brought forward by Sachs and Georgi. The purpose of this investigation was to determine, if possible, the reliability, accuracy and delicacy of the Sachs-Georgi reaction as compared with the Wassermann test and its availability for those not equipped with laboratory facilities.

The original paper could not be obtained, and the technic used in this series is that given by Galli-Valerio,[2] which agrees with that noted in all the references consulted, and which is as follows:

Reagent: A cholesterinized, alcoholic extract of beef heart made according to the following formula:

Alcoholic extract of beef heart (1 gm. to 5 c.c.)	100 c.c.
Alcohol	200 c.c.
1 per cent. alcoholic solution of cholesterin	13.5 c.c.

The strength of the alcohol is not noted in the paper consulted. In this series, all extracts and alcoholic solutions were made with absolute ethyl alcohol. The cholesterin solution was prepared from Merck's cholesterin.

For use the extract is diluted 1:5 with sterile 0.85 per cent. of sodium chlorid solution. One part of saline solution is slowly added to an equal part of the extract with gentle shaking, and the remaining four parts are added rapidly. As it was stated that it is important that the sterility and strength of the sodium chlorid solution be carefully checked, the solution used in this series was made from sodium chlorid crystals dried for two hours at 180 C., autoclaved for fifteen minutes at 15 pounds, and the sterility checked by culture.

Test Serum: This must be fresh, clear, free from blood, and inactivated for thirty minutes at 56 C. In this series no serum over twenty-four hours old was used, and all were kept at a temperature of from 4 C. to 9 C. before use.

TECHNIC OF SACHS-GEORGI TEST

The patient's serum is diluted 1:10 with sterile 0.85 per cent. salt solution. One cubic centimeter of this dilution is placed in a clean, sterile tube and 0.5 c.c. of the diluted extract added. The tube is then shaken gently and incubated for two hours at 37.5 C. It is then allowed to stand at room temperature, being inspected at 24 and 48 hours, the latter being the extreme time limit of the test.

Galli-Valerio states that the reaction may also be read after from three to four hours at room temperature by centrifuging the tubes, but, as the chief purpose of this investigation was to determine the

2. Galli-Valerio: Cor.-Bl. f. schweiz. Aertze **49**:1978 (Dec. 25) 1919.

suitability of this reaction in the hands of those without laboratory facilities, this method of reading was not utilized. A known negative serum must be included as a control.

Reading the Reaction.—A positive reaction is indicated by the appearance of a flocculent precipitate. After forty-eight hours, false precipitates may be secured. It is recommended that the tubes be read by transmitted light, using a hand lens, or, if possible, some sort of agglutinoscope. In this series all serums were tested by the above method and the readings recorded as follows:

Plus 4: Well marked precipitate, plainly discernible.

Plus 2: Perceptible precipitate, not so heavy as ++++.

Plus 1: Faint trace of precipitate.

Negative: No precipitate.

Readings were made at twenty-four and forty-eight hours by transmitted light and a modified agglutinoscope, and recorded in this manner.

TECHNIC OF WASSERMANN TEST

All serums were also tested by the Wassermann reaction at the same time according to the following technic:

The complement consisted of the pooled serums of from two to four pigs used in a dose of 0.5 c.c. of a 1:10 solution in an 0.85 per cent. sodium chlorid solution. The amboceptor consisted of glycerinated serum, diluted according to titer with 0.85 per cent. saline solution, the dose used in the test being determined by titration before the test. The same amboceptor was used throughout the series.

All serums were separated from the blood clot as soon as obtained, kept at a temperature of from 4 to 9 C. until used, and were used within twenty-four hours of collection and inactivated thirty minutes at 56 C. just before the test. The same antigens were used throughout the series.

A triple battery was used for each serum: cholesterinized extract of the human heart, acetone-insoluble lipoids of the human heart, and alcoholic extract of a syphilitic liver. The dose was determined by antigenic and anticomplementary titrations, the amount used being always at least twice the antigenic unit; this amount was from five to ten times less than the anticomplementary unit.

The sheep was bled the day preceding the test, the cells washed four times with 0.85 per cent. saline solution and used in amounts of 0.5 c.c. of 2.5 per cent. suspension in normal saline.

RESULTS OF COMPARISON OF TWO TESTS

The results of comparison between the Sachs-Georgi and Wassermann tests have been reported by numerous foreign observers.

Wolffenstein [3] from 1,000 parallel tests draws the following conclusions:

1. Even with the most careful technic, misleading results occur on account of seemingly unavoidable errors in preparing the solutions. The Sachs-Georgi reaction alone, therefore, cannot be relied on.

2. The Sachs-Georgi reaction becomes manifest earlier than the Wassermann reaction and can be elicited later.

3. The number of unspecific Sachs-Georgi reactions is relatively high, being especially common in febrile conditions. The reaction may be obtained in clinically healthy subjects.

4. A diagnosis of syphilis and conclusions as to treatment cannot be based entirely on the results of Sachs-Georgi tests alone.

Wodtke [4] states that the sensitiveness of the test can be increased by using double the amount of the serum prescribed, although, with some serums, this does not give as sharp a reaction as when the usual dose is employed. He also uses an additional extract of cholesterinized human heart and claims a higher number of positive reactions as a result.

Baumgartel [5] summarizes 25,000 tests made by others, together with 7,000 of his own, and states that the two reactions agree in 90 per cent. of all cases. He recommends that the reaction be taken solely at incubator temperature and that the results be read at two, twenty-three and forty-eight hours.

Dekenga and Platenga [6] report occasionally conflicting findings, and state that the Sachs-Georgi test cannot be relied on alone but, in combination with the Wassermann test it may be of corroboratory value. They also state that the Sachs-Georgi reaction becomes negative sooner under treatment than the Wassermann, thus disagreeing with Wolffenstein in this respect.

Messerschmidt [7] finds the Sachs-Georgi of equal value with the Wassermann reaction in a series of 1,100 tests.

RESULTS OF AUTHOR'S TESTS

In the present series, a total of 296 parallel tests were made on serums obtained from patients under treatment, from patients tested for diagnosis, from patients known to be syphilitic, from patients known to be nonsyphilitic and on cord bloods obtained through the obstetric department.

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3. Wolffenstein: Berl. med. Wchnschr. **56**:1110 (Nov. 24) 1919.
4. Wodtke: München. med. Wchnschr. **67**:399 (April 2) 1920.
5. Baumgartel: München. med. Wchnschr. **67**:402 (April 2) 1920.
6. Dekenga and Platenga: Nederl. Tijdschr. v. Geneesk. **1**:1631 (May 8) 1920.
7. Messerschmidt: Deutsch. med. Wchnschr. **46**:150 (Feb. 5) 1920.

In order to render the test comparative, both reactions were set up at the same time, the antigens and other reagents being the same throughout. Incubation of the Sachs-Georgi reactions, following the recommendation of Baumgartel,[5] was solely in the hot air incubator, readings being made at twenty-four and forty-eight hours. It may be noted that the readings of the Sachs-Georgi tests were often made with some difficulty, even in the moderately well-marked positive tests, and required careful adjustment of the tubes and the source of light.

Of the total number of serums tested, sixty, or 23 per cent., gave positive Wassermann reactions of varying degree; in the Sachs-Georgi tests the total number of positive reactions of all degrees was forty-three or 14 per cent., some of which were in Wassermann negative serums as seen in Table 1.

TABLE 1.—RESULTS WITH WASSERMANN ++++ SERUMS*

Number of Serums	Sachs-Georgi Reaction				
	++++	+++	++	+	—
28	4	0	2	4	18

* Positive with all antigens (++++).

There were 220 negative Wassermann serums, or 70 per cent., while the Sachs-Georgi negatives numbered 198, or 60 per cent., some of these occurring in Wassermann positive serums. A comparison of the tests with the Wassermann negative serums is given in Table 4.

Of sixteen anticomplementary serums, two, or 12 per cent., gave a weakly positive, +, Sachs-Georgi reaction.

Twenty-three serums, or 7 per cent., reacted only with the cholesterinized heart extract and the acetone insoluble lipoids extract, the syphilitic liver extract being negative; of these 6, or 2.6 per cent., gave positive Sachs-Georgi reactions (Table 2).

TABLE 2.—RESULTS WITH SERUMS REACTING WITH CHOLESTERIN AND ACETONE EXTRACTS ONLY

Number of Serums	Sachs-Georgi Reaction				
	++++	+++	++	+	—
23	0	0	1	5	17

Without entering into a discussion of the exact significance of a reaction occurring with the cholesterinized extract alone, the other two antigens being negative, it is of interest to note that nine of the series, or 3 per cent., gave such a reaction; of these, one was weakly positive with the Sachs-Georgi test.

TABLE 3.—Results with Cholesterin Positive Serums*

Number of Serums	Sachs-Georgi Reaction				
	++++	+++	++	+	—
9	0	0	0	1	8

*++++ with cholesterin extract only.

TABLE 4.—Results with Wassermann Negative Serums*

Number of Serums	Sachs-Georgi Reaction				
	++++	+++	++	+	—
220	5	0	4	13	198

*Negative with all antigens.

TABLE 5.—Results with Anticomplementary Serums

Number of Serums	Sachs-Georgi Reaction				
	++++	+++	++	+	—
16	0	0	0	2	14

SUMMARY

1. The results of 296 parallel Wassermann and Sachs-Georgi reactions are reported.

2. The Sachs-Georgi reaction is often difficult to read, and the results of the small series would apparently indicate that:

(*a*) The Sachs-Georgi reaction is not as delicate or as trustworthy as the Wassermann reaction in the serodiagnosis of syphilis.

(*b*) The Sachs-Georgi reaction may be positive with Wassermann negative serums and negative with Wassermann positive serums.

(*c*) The number of nonspecific reactions is sufficiently high to render the test unreliable as a means of diagnosis.

CONCLUSION

A diagnosis of syphilis, or a conclusion as to treatment, cannot be based on the results of a Sachs-Georgi test with safety, and the reaction is not suitable for general use for this purpose.

ERRATUM

In an abstract of Stokes and Bushman's article, "A Clinical Study of Wassermann-Fast Syphilis, with Special Reference to Prognosis and Treatment," which appeared in the February number of the Archives, on page 177, line 1, "66 per cent." should have been 6.6 per cent.

Editorial

THE CARELESS WRITING OF MEDICAL AUTHORS

Dr. George Henry Fox, who has given us so many thoughtful suggestions as to diction and vocabulary in dermatologic writings, has contributed to this issue of the ARCHIVES an interesting article on "Dermatological Etymology." He emphasizes the interest and instructive value of this subject. It is to be hoped that his suggestions will stimulate others to follow at least a little way along this path of profitable study; for, as Dr. Fox says, "It enlarges one's vocabulary; it renders more accurate the appreciation of the meaning of words, and it tends to precision in the use of them."

And no one who reads medical literature can fail to note the need for improvement in all these respects, as well as in many other matters of style. It is a sad fact that the style of medical articles is notoriously loose; this is the result partly of inexperience in writing, partly of carelessness and partly—it must be admitted—of ignorance. Dermatologists are fully as guilty as others of these faults. Lack of serious thought concerning the plan of presentation of a topic, carelessness in the construction of sentences, slovenly use of words, and occasionally downright bad grammar, are apparent more frequently than one likes to believe even in the articles of men of light and leading among us. Scores of examples of such slips can be found with little effort. Let us instance a few—most of them taken, it happens, from one paper—and that not a rare one.

The too frequent use of the participial adjectives "marked" or "pronounced," when the writer means great, large, distinct, appreciable, moderate, considerable, extreme, intense or some other quality that he could easily, with a little thought, express accurately by means of a descriptive word, is perhaps the most frequent fault. "Marked" used in this indefinite sense was found four times in two short consecutive paragraphs in a manuscript written by an academic graduate of one of our famous colleges. The adverb "quite" is used in the same way; sometimes it is used as a diminutive adverb, as "quite frequently" for "occasionally," or to express all degrees of qualification from slightly to completely: "His mentality was quite low" for "His mentality was extremely low." The great objection to the loose use of such words as "marked" and "quite" is that the words when so used do not indicate accurately what qualifications the writer means.

Tautology, such as "palms of hands," "soles of feet" and "taste in the mouth," appears constantly, although everybody knows that there are no other palms or soles and that there is no other seat of the

sense of taste; but many physicians do not take advantage of this knowledge in their writing. The words "case" and "patient" are confused. Such expressions are used as, "The patient was a lichen planus," when, of course, the author means that the patient was a human being suffering from lichen planus.

The unnecessary use of the word "so-called" is frequently encountered when the author is perhaps a little uncertain in the use of a word, and will not verify its meaning or take the pains to make his mind clear concerning it—in other words, when the author is careless or thoughtless. Thus, the expression, "so-called hard labor" he uses to characterize the occupation of a patient who is, perhaps, a hod carrier or a boilermaker.

A similar screen for uncertainty is the throwing of quotation marks around sound Anglo-Saxon words that have a pedigree of good usage extending back to the beginning of the English language. Thus words such as "burns" and "sick" are frequently set off by quotation marks. One is inclined to suspect that the writer dodges behind these quotation marks because he is a little bit afraid that he is using a word that is not good—although it is the only one he has ever used to express the idea he wishes to convey—or because he has a subconscious feeling that it would be more elegant to use a Latin word—and he cannot remember it.

The examples cited are only a few of the frequent or flagrant crudities, but they suffice to illustrate the carelessness that disfigures our writing. It would redound vastly to our credit and to our profit if we would pay more attention to the canons of good writing, particularly to the accurate use of words. The accurate use of words is the very basis of good style. Huneker in his essay "Style and Rhythm in English Prose," says: "Style cannot be taught. A good style is direct, plain and simple. The writer's keyboard is that humble camel, the dictionary." We would particularly direct attention to the last sentence: The writer's keyboard is that humble camel, the dictionary." In other words, a knowledge of the meaning of words—and that involves the constant use of the dictionary—is the first essential to the writing of correct English. It would also be well if we should remember that "a good style is direct, plain and simple." To take an illustration furnished by Quiller-Couch in his book "On the Art of Writing": "Do not say, 'He was conveyed to his place of residence in an intoxicated condition'; say 'He was carried home drunk.'"

W. A. P.

Abstracts from Current Literature

CLINIC ON THE DIAGNOSIS AND TREATMENT OF NEUROSYPHILIS. H. C. Solomon, Boston M. & S. J. **183**:723 (Dec. 23) 1920 and **183**:768 (Dec. 30) 1920.

This is a long but excellent article on the subject of neurosyphilis. There are four reasons why neuropsychiatrists see neurosyphilis:

1. The majority of the patients have been in the hands of a physician who might have made a diagnosis of syphilis earlier, especially with the aid of a Wassermann reaction.

2. Many patients have failed or refused to follow the correct advice given by physicians who saw them in the early stages of the disease.

3. A certain number are told by their physicians that they are cured and need no further treatment.

4. Many patients give no history of syphilitic infection.

The importance of a lumbar puncture is emphasized. The literature in regard to the time of involvement of the nervous system by the spirochete is reviewed, and the rules given by Ravaut as to the use of lumbar puncture are:

1. Patients with early syphilis showing symptoms indicative of central nervous system involvement, namely, headache, dizziness, ocular and aural symptoms, should receive a lumbar puncture.

2. All patients seen after the early secondary stage who are not to receive most intensive treatment.

3. All patients treated from the primary or early secondary stage who do not give a negative Wassermann reaction in the expected time.

4. All patients showing mental or nervous symptoms, irrespective of the result of the blood Wassermann reaction.

Seventeen cases of neurosyphilis are discussed in detail, particularly in regard to lumbar puncture findings and treatment. An excellent discussion of this class of cases and their treatment by intravenous, intraspinal and intraventricular injections is given, and is well worth perusal.

The author's conclusions are:

1. The central nervous system is involved by syphilis frequently in the primary and secondary stages; this involvement is ordinarily benign and disappears symptomatically with or without treatment.

2. In a small number of cases, acute meningitis, meningo-encephalitis, vascular syphilis and gummas occur in the secondary period of the disease.

3. About 10 per cent. of all patients with syphilis develop late neurosyphilis, tabes, paresis, meningitis, meningo-encephalitis, gummas and vascular syphilis.

4. Neurosyphilis is always serious, affecting the mind, utility and life of the patient.

5. Diagnosis is often only possible by the aid of the spinal examination.

6. Therapeutic results are better the earlier the diagnosis of syphilis is made and the sooner treatment is instituted.

7. The spinal fluid is often positive long before definite symptoms are present; hence the need of frequent lumbar puncture.

8. More intensive treatment is usually required to treat neurosyphilis than in the treatment of nonnervous-system syphilis.

9. Cases of meningitis, acute meningo-encephalitis and mild vascular syphilis usually react favorably to intensive intravenous injections.

10. For these conditions intraspinal injection will at times accomplish more than intravenous therapy.

11. It is more difficult to cause improvement in tabes than in the forms of syphilis mentioned in the foregoing. Many patients, especially those with early cases, show improvement under intravenous therapy adequately administered, but with intraspinal therapy they will frequently do much better. It is often the method par excellence.

12. Many patients with cases diagnosed as paresis make fair recoveries under intravenous therapy.

13. Intraspinal injections and drainage of the cerebrospinal fluid may aid in the intravenous treatment of general paresis.

14. Intraventricular injections may at times give more favorable results than any other in the treatment of paresis.

LANE, Boston.

CLINICAL REMARKS ON TRICHOPHYTIA PROFUNDA (KERION CELSI). C. RASCH, Brit. J. Dermat. & Syph. **32**: (Nov.) 1920.

Rasch calls attention to the fact that the mycoses of the skin can no longer be considered as exclusively local conditions which vegetate on the surface of the body without in any way influencing the general health. He reviews the literature which showed that an extract of a trichophyton culture invariably occasioned a reaction in patients who had kerion, while it had no effect on other people, and that animals and man once infected seemed to become immune. He states that several experiments have shown that trichophytosis profunda is cured more quickly than the superficial form because of the formation of an abundance of matter which secures immunity.

After giving the frequency of the various types of fungi found in seventy-one cases of trichophytosis with kerion formation seen in his clinic, he discusses the occurrence of trichophytids among these patients, and describes a wide variety of types. In nineteen cases (all children) the so-called lichenoid trichophytids of Jadassohn occurred, sometimes combined with spinulous, vesicular or pustular formation, the eruption varying from small pink scattered follicular papules to a generalized outbreak with thousands of lesions arranged in various ways.

Other forms of eruption secondary to kerion formation are then described. Pure vesicular eruptions were seen five times, and a scarlatiniform eruption was seen twice. An erythema multiforme was seen once, extensive pigmentation twice, and a scaling trichophytid of the scalp, resembling pityriasis simplex, but disappearing spontaneously in a few weeks, was seen five times. He also describes a case of erythema nodosum and one of alopecia in minute patches which he believes may have been due to kerion celsi.

All of his cases of kerion healed in from three to six weeks with the use of boiled water fomentations only, and all other foci of trichophytia on the skin disappeared simultaneously without any local treatment. Rasch has not seen this observation cited heretofore, and his observations show that it may be said to be invariable in cases in which the kerion lesions are caused by trichophyton faviforme discoides.

SENEAR, Chicago.

LES ARTHROPATHIES AU COURS DE LA SCLERODERMIE (THE ARTHROPATHIES IN THE COURSE OF SCLERODERMA). C. ADRIAN and J. ROEDERER, Ann. de dermat. et syph. **6**:299, 1920.

This article deals with arthropathies which are wholly independent of any changes in the surrounding skin or muscles, and in which all etiologic factors, other than scleroderma, can be excluded. Three cases are reported in detail, and it is interesting to note that the patients were all young women. The literature is thoroughly reviewed with a complete analysis, and an extensive bibliography is given. The conclusions are:

1. Arthropathies occasionally accompany scleroderma as local manifestations of the sclerodermatous process. They may precede the cutaneous appearance of the disease, develop simultaneously with it or succeed it. In the absence of cutaneous lesions the diagnosis cannot be made with any certainty.

2. Those in the fourth decade are especially liable to be thus attacked, and women are greatly in the majority. The patient's occupation seems to be of no etiologic importance, excepting that chilling or damp cold seem to predispose.

3. One of several joints may be involved, and the condition may disappear spontaneously, perhaps later to recur.

4. The onset is usually insidious, but may be acute and painful.

5. After the small digital joints the tibio-femoral is the one most frequently involved.

6. The surrounding muscles, tendons, sheaths and bursae are often affected. The heart is seldom involved. Changes in the thyroid gland have been noted.

7. The roentgen-ray and necropsy findings do not differ from those of other articular conditions.

8. At present the nature of these arthropathies is unknown. It has not been proved that they are of nervous origin, central or peripheral, nor that the process is infectious, although the occasional cases with acute onset point to the latter as a possibility.

9. The prognosis is good in the less severe forms, but in the cases characterized by progressive extension of the involvement ankylosis often ensues, and then the prognosis is more serious.

10. Therapy is impotent, and we may only advise concerning hygienic and dietary measures, applications, dressings and massage. Salicylic acid and its derivatives do not fulfil our hopes.

PARKHURST, New York.

ZUR BEHANDLUNG TUBERKULOEDESER HAUTERKRANKUNGEN MIT DEN PARTIGENEN NACH DEYCKE-MUCH (TREATMENT OF SKIN TUBERCULOSIS WITH THE PARTIAL ANTIGENS OF DEYCKE-MUCH). R. POLLAND and E. KIENE, Dermat. Ztschr. **31**: 219, 1920.

It appears that Deycke and Much have been experimenting with fractions of the tuberculin products and have used such fractions in various dilutions both for diagnostic and therapeutic purposes to good avail. The authors thought it worthy of consideration in their work on skin tuberculosis. The fractions used were: A (albumin), from 1:10 million to 1:1,000 million; B (fatty acids and lipoids), from 1:1000 million to 1:10 million; N (neutral fat), from 1:1000 million to 1:1 million; MTbR (residual), from 1:10 million to 1:10000 million.

It is asserted that there is a normal relation between the reactions to the three partial antigens, which normal is found disturbed in tuberculosis, and that it may be possible to determine formulae of which partial antigen is lacking in the various types of tuberculosis of the skin.

Unfortunately, in the studies reported in this paper, no definite conclusions can be reached because the patients were treated by many of the accepted methods, which are known to give improvement in addition to the partial antigens.

Certainly repeated studies of this kind under more auspicious circumstances and with better controls may lead to clearing up the confusing state of our limited knowledge concerning the immunity reactions in the various types of clinical tuberculosis of the skin and elsewhere.

The references given are:

Much: Tuberkulose, Ergebn. d. Hyg. **2**: 622.

Deycke and Much: Tuberkulin und Tuberculosis-Immunität, München. med. Wchnschr., 1913, H. 3 u. 4. Die Tuberculosis Behandlung nach Deycke-Much, Beitr. z. Klin. d. Tuberkul., 31, H. 2.

GOODMAN, New York.

ESSAI SUR LES LICHENS, LA LICHENIFICATION (AN ESSAY ON THE LICHENS AND LICHENIFICATION). M. DIND, Ann. de dermat. et syph. **6**:273, 1920.

The various forms of lichen planus, the neurodermites, the "neurodermies" of Brocq-Jacquet, the prurigo vulgaris of Darier and the "prurigo diathesique" of Besnier should all be united, says the author, under the common name lichen ruber, or lichen ruber planus, or better still, lichen.

The clinical and histologic appearances and the treatment are discussed, and the etiology is held to be probably parasitic. It may start as a generalized or a localized papular eruption; the papules may be isolated or grouped. Furthermore, the papules are polymorphous, their form being influenced to some extent by the anatomic location. The evolution may be sudden with an exanthematous eruption, papular and sometimes papulobullous; but generally it is more gradual. Characteristic lesions of the mucosae may sometimes accompany the cutaneous manifestations of the disorder. Aside from the usual papular forms, lichen may have the appearance of a granuloma or of erythematous plaques, localized, chronic in their course, with an underlying and surrounding vascular dilatation and pigmentation.

By way of treatment arsenical preparations are used, the intravenous method securing the best results. Neo-arsphenamin was employed advantageously in a number of the author's cases. If the involution of a neurodermite is observed carefully, it is said that papules identical with those of lichen planus will often be noted emerging from the plaques.

PARKHURST, New York.

RADIOTHERAPY IN GERMANY (1914-1919). THE PRINCIPLES OF RADIOTHERAPY. ISER SOLOMON, J. de radiol. et d'electrol. **4**:358, 1920.

This article summarizes each of the important monographs and articles on roentgenotherapy that appeared in Germany during the war.

Filtered treatment for skin diseases amenable to radiotherapy seems to be in vogue. Much higher voltages are used in Germany than in this country. The aim appears to be to develop a homogeneous ray, as it is believed that

its value is greater than an heterogeneous one. This applies especially to deep therapy; yet cannot be neglected in superficial conditions.

Several authors cite clinical experiences with filtered treatment (4 mm. aluminum) in skin diseases. Wetterer found that hypertrichosis, eczema of the face and sycosis responded better to the filtered ray. In the not too inveterate cases of acne vulgaris, filtered rays give an ideal result. It is equally valuable in acne keloid. According to this author, juvenile warts are rapidly healed by this method. However, in chronic eczema and psoriasis unfiltered treatment is more efficacious. Gunsett has obtained such excellent results in hypertrichosis by filtered therapy (4 mm. aluminum) that he believes that electrolysis will be superseded by this method of treatment.

On the experimental side, German investigators have come to some conclusions, already propounded in this country, anent the properties of the roentgen ray. For instance, Kronig and Friedrich, who have published a monograph based on their extensive experiments, declare that the biologic effect depends on the quantity, and not the quality, of the ray absorbed. The intensity of the biologic action for the same dose does not differ if the rays are unfiltered or filtered through 3 mm. of aluminum or 1 mm. of copper. Of particular interest is their conclusion that the intensity of biologic action differs if the total dose is given at once or divided into fractional doses.

MICHAEL, Houston, Texas.

HEREDOSIFILIS DEL SEGMENTO ANTERIOR DEL OJO (HEREDOSYPHILITIC MANIFESTATIONS IN THE ANTERIOR SEGMENT OF THE EYE). E. BENAVIDES, Los Prog. de la Clin. **8**:201, 1920.

Syphilis is transmitted from the mother to the child, although she may be clinically free of syphilitic manifestations, but the Wassermann reaction may be positive. The diagnosis of syphilis of the second generation, and heredosyphilis of the first generation can always be made clinically by means of the manifestations, dystrophies, stigmas, etc., which are always present in some degree. Of the triad of Hutchinson, the auditory manifestations are least frequent, next the oral signs, but the ocular stigmas are never absent. Stigmas of the cornea, pupil, and fundus of the eye are considered the ocular triad. The presence of these stigmas proves that heredosyphilis is much more frequent than ordinarily supposed. Among other modifications which exist in the eye of the heredosyphilitic patient is mentioned: changes in the circumference, which represents the limits of the cornea; modifications of the curvature of the cornea; fixed pupils, internal ophthalmoplegia; paresis of the muscles of accommodation and mixed forms.

Adenoid vegetations, and leukorrhea in children, and the death of brothers and sisters early in life should lead one to suspect hereditary syphilis. Ocular symptoms are sufficient, in Benavides' opinion, to affirm the existence of syphilis even if the Wassermann reaction is negative. Conjunctivitis, keratitis (eczematoid, pustular, phlyctenular, and so forth), ordinarily seen in the children of syphilitic and in heredosyphilitic persons, are favorably influenced by mercury. The Wassermann reaction in many of these cases may be negative. Fascicular keratitis or band keratitis seen almost always in heredosyphilitic patients or in those of the second generation, are improved by mercury, and frequently the Wassermann reaction is positive. In parenchymatous keratitis the Wassermann reaction is negative only exceptionally, and the best treatment is mercury and some preparation of arsphenamin.

GOODMAN, New York.

SUR LA TRAITEMENT DE LA PELADE (TREATMENT OF ALOPECIA AREATA). R. Sabouraud, Presse méd., December, 1920, p. 874.

The author emphasizes the importance of the proper method of treatment of this disease and especially its necessity as a means of warding off the appearance of new lesions. One of the most common errors is the limitation of treatment to the one or more bald spots present when it is instituted. He gives as the first indication for treatment the prevention of the formation of new patches and as the second indication the treatment of the patches themselves.

The therapy differs somewhat depending on whether the disease is benign or grave, as evidenced by the rapidity of spreading, number of broken hairs, etc.

In a benign case the author prescribes for the entire scalp, eau de Cologne, 300 c.c., crystalline acetic acid, 10 gm., commercial formol, 1 gm. The following mixture is at the same time to be applied to the bald spots: Hoffmann's solution, 30 gm., and crystalline acetic acid, 1 gm.

Should a single new spot appear it is necessary to institute a more severe form of treatment. For this purpose the following salve is to be applied daily to the entire scalp: deodorized oil of cade, 10 gm.; vasolanolin, 20 gm.; yellow basic sulphate of mercury, 1 gm.; verbena oil for fragrance, q. s.

To cause the regrowth of the hair on the bald spots the author believes that the following preparation is the most efficacious: chrysophanic acid, 30 cg.; anesthesia chloroform, 30 gm. The tar mixture should be used at the same time on the rest of the scalp.

In alopecia of the beard treatment is not successful. Because of the difficulties in using on the face the preparations given above, the author recommends the following, the effect of which is problematic: purified xylol and Hoffmann's solution in equal parts.

The article is concluded with emphasis on the importance of syphilis as one of the etiologic factors in the cause of the disease.

Ketron. Baltimore.

POSTMORTEM REPORT ON A CASE OF LUPUS ERYTHEMATOSUS. R. Cranston Low and Andrew Rutherford, Brit. J. Dermat. & Syph. **32**:326 (Nov.) 1920.

The patient was a widow, aged 56 years, who was admitted to the hospital for bronchitis. There was present a typical chronic lupus erythematosus of the face and ear, which had been present for some years. She had abundant purulent sputum, which contained numerous diplococci, Friedländer bacilli and *Streptococci longi*, and she had extreme pyorrhea. The teeth were extracted, and she was treated with a vaccine made from the Friedländer's bacillus and *Streptococcus longus* found in her sputum. The skin disease improved considerably under this treatment, and the bronchitis improved so much that she left the hospital, but she returned in three months with recurrence of her breathlessness and other symptoms and also with a relapse of the lupus erythematosus. Death followed about a month later.

The postmortem changes found were: lupus erythematosus; subacute nephritis; hypertrophy and dilatation of heart; atheroma of the aorta and coronary arteries; chronic congestive changes in the lung, spleen and liver; simple adenomas of the suprarenal and thyroid glands. There were no tuberculous changes. Careful search revealed no foci of tuberculosis or streptococcus

infection. The head could not be examined, but there were no symptoms pointing to foci.

The lack of evidence of tuberculosis and the improvement after the vaccine treatment suggests that *Streptococcus longus* in the mouth and bronchi may have been responsible for the condition.

SENEAR, Chicago.

EPIDEMIC INFECTIOUS JAUNDICE AND ITS RELATION TO THE THERAPY OF SYPHILIS. J. H. STOKES, R. RUEDEMANN, JR., and W. S. LEMON, Arch. Int. Med. **26**:521 (Nov.) 1920.

Stokes and his associates have arrived at the conclusion, after studying seventy cases, that there is a distinct type of jaundice due to an infectious agent, possibly associated with epidemic respiratory infections, which has appeared among their patients.

The large proportion of their cases could not be ascribed either to syphilis or to antisyphilitic treatment, most of these syphilitic patients having already received so much treatment that arsphenamin and Herxheimer reactions and hepatic recurrences were practically eliminated. As a further argument against its syphilitic nature, the majority recovered during suspension of treatment, many of them not being treated again.

There appeared to be no relationship between the time of giving and the appearance of jaundice, nor was the total quantity such as to cause unexplainable symptoms.

The jaundiced cases were greatest in number during the months of respiratory and systemic infections, and approximately half the number had associated prodromal disturbances of the upper respiratory tract.

The authors are inclined to believe that this is a nonspirochetal catarrhal jaundice, which in many cases may have been incorrectly ascribed to syphilis or its treatment; their studies suggest that it is in part hematogenous and associated with gastro-intestinal lesions.

JAMIESON, Detroit.

A PROPOS DU TRAITEMENT DE LA SARCOIDE DE BOECK-DARIER (CONCERNING THE TREATMENT OF THE BOECK-DARIER SARCOID). A. CIVATTE and P. VIGNE, Ann. de dermat. et syph. **5**:254, 1920.

A young woman presented the sarcoid of Boeck, which was histologically verified. She reacted to tuberculin and her Wassermann reaction was negative. Three injections of neo-arsphenamin brought about an apparent disappearance of the lesions, although they were still demonstrable histologically.

The authors reach these conclusions:

1. The cutaneous sarcoids of Boeck-Darier constitute a definite clinical type. We cannot be precise as to their nature and their etiology. It is likely that they belong to the tuberculids. There is no proof that they can be produced by syphilis.

2. The therapeutic success sometimes attached to the injection of neo-arsphenamin does not permit us to conclude that these sarcoids are syphilitic which are thus cured, or apparently cured.

3. The cure, as inconstant with this method as with others, is not always, when obtained, anatomically complete, and is perhaps not always lasting.

PARKHURST, New York.

UEBER MODERNE, KOMBIENERTE LUPUSBEHANDLUNG (MODERN, COMBINED TREATMENT OF LUPUS). GUSTAV STÜMPKE, Dermat. Wchnschr. **71**:803 (Oct.) 1920.

The following method is used by the author in the treatment of ordinary lupus without complications: Ten per cent. of pyrogallol salve is applied until there is a decided cauterizing effect (in from eight to ten days). This is followed by a full dose of roentgen rays filtered through 1-3 mm. of aluminum. Immediately before the roentgen-ray treatment the patient receives an intravenous injection of 0.15 gm. of silver arsphenamin or 0.3 gm. of neo-arsphenamin. Boric salve, 3 per cent., is used for eight days, after which the process is repeated. Finally, 1 per cent. of silver nitrate or 2 per cent. "Pellidolvaseline" is applied. During the whole time of treatment the patient receives light baths with the "Höhensonne" lamp.

Silver arsphenamin and neo-arsphenamin were given because of the general effect of arsenic on the disease and the possibility of its increasing the activity of the roentgen rays. Treatment lasted usually from six to seven weeks.

KETRON, Baltimore.

HYPERSENSITIVENESS TO ARSPHENAMIN FOLLOWING EXFOLIATIVE DERMATITIS. H. C. STUART and E. P. MAYNARD, JR., Arch. Int. Med. **26**:511 (Nov.) 1920.

Cases of chronic arsenic poisoning are the only ones considered in this article. In the case reported the exfoliative dermatitis developed after the seventh dose of arsphenamin, either due to an accumulation of arsenic in the tissues from faulty elimination or to hypersensitiveness. With the hope of preventing hypersensitive patients from receiving arsphenamin, intradermal injections of neo-arsphenamin and arsphenamin were made in dilutions of from 1:1,000 to 1:125,000.

Control cases showed a local reaction immediately after injection which persisted as a small papule or macule for a few days. These controls were treated syphilitic patients who had no reaction, syphilitic patients not treated with arsphenamin and nonsyphilitic patients.

Three patients who had had exfoliative dermatitis received local injections of diluted arsphenamin, two patients showing a typical reaction which lasted about eleven days. The third patient was tested nine months after the dermatitis had subsided and showed no local reaction to the injections, possibly because hypersensitiveness had subsided.

This test may prove to be of value in determining whether it is safe to give arsphenamin or to renew treatment after a dermatitis.

JAMIESON, Detroit.

PELLAGRA. EDWARD J. WOOD, Edinburgh M. J. **25**:6 (Dec.) 1920.

A report is made of a case of pellagra occurring in a woman, aged 52, who lived in Edinburgh continuously for the past thirty years. The condition appeared seven years prior to presentation with erythema of the forearms. Marked progressive weakness of the lower extremities was of four months' duration. In this case it is interesting to note: 1. This patient had no diarrhea at any time during the course of the disease. 2. Salivation was slight. 3. The skin lesion was typical. 4. The mental symptoms frequently occur in pellagra. The writer asserts that the mental symptoms may be prevented or

reduced by early proper correction of the diet and the avoidance of toxemia.

As a result of his extensive experience with this disease in North Carolina (U. S. A.), he concludes that the following procedures constitute the best method of treatment: rest in bed and a diet containing abundant protein, preferably of animal origin; that whole wheat flour and maize, ground without any part removed, are used rather than the highly "patent" product; and, that bicarbonate and baking powders are avoided in the cooking.

A PROPOS DE LA RADIOTHERAPIE DES TEIGNES PRATIQUEE SELON LA METHODE DE KIENBOEK-ADAMSON (CONCERNING THE RADIOTHERAPY OF TINEA PRACTICED ACCORDING TO THE METHOD OF KIENBOEK-ADAMSON). H. Noiré, Ann. de dermat. et syph. **7**:360, 1920.

This is the method of choice for roentgen-ray epilation in cases of tinea capitis. The method of determining the location of the five equidistant centers is reviewed, and we are reminded that the tube must be so placed that the center of irradiation will be perpendicular to the spot treated. To facilitate this a localizer is used, consisting of a metal ring fitted with two "legs," diametrically opposite, whose length measures the exact distance of the tube from the scalp. The ring is applied to the tube and the ends of the legs just touch the scalp. It is then completely revolved in the same plane and measurements are thus made accurate in every direction.

This method is simple and successful. The chief causes of failure are: a defect in the technic of dosage; improper centering of the tube, and inaccuracy in the distance between the scalp and the tube.

Parkhurst, New York.

ZUR FRAGE DER ERYTHROMELALGIE (CONCERNING ERYTHROMELALGIA). Kunstmann, Dermat. Wchnschr. **71**:745 (Sept.) 1920.

Kunstmann describes a case of erythromelalgia occurring in a soldier 21 years of age. The condition began in the toes and soles of the feet with burning and pain and developement of red spots. Eight months before the patient had contracted syphilis and had taken two courses of treatment. Three other courses were given after the development of the erythromelalgia, but the condition steadily became worse, the redness and swelling extending to the knees. The pain was so intense that morphia had to be given and ulcers eventually developed. Finally, after about seven months, the pain became so severe that it was necessary to amputate both legs. The patient made a good recovery and enjoyed good health.

No pathologic changes were found in the vessels and nerves in the amputated limbs. The author considers erythromelalgia as a symptom of a function disturbance of the central nervous system.

Ketron, Baltimore.

LA REACTION DE BORDET-WASSERMANN DANS LES TRANSSUDATES CHEZ LES SYPHILITIQUES (THE BORDET-WASSERMANN REACTION IN THE TRANSUDATES OF SYPHILITIC PATIENTS). Riser, Ann. de dermat. et syph. **10**:452, 1920.

A study was made of sixteen patients, old syphilitic patients who presented pleural effusions and edema of the extremities due to nonspecific cardiorenal lesions or to ordinary pneumonia. In all the blood Wassermann reaction was

strongly positive. It was equally positive in the fluids of edema and the pleural and ascitic transudates of five patients. In four of these cases necropsy revealed no syphilitic lesions, pleural, pulmonary or thoracic, to account for the positive reaction in the transudate.

It is thus shown that the transudate from a positive blood is positive in the entire absence of any local syphilitic process. But what can be said about the following case? An old hydrothorax, whose fluid had been reacting positively, disappeared for a time. It then rapidly reappeared and showed a negative reaction while the blood reacted positively.

PARKHURST, New York.

DERMATITIS FACTITIA. CASE REPORT WITH BRIEF LITERARY REVIEW. JOHN B. RICHARDSON, Urol. & Cutan. Rev. **24**:12 (Dec.) 1920.

The author states that the following are to be considered among the predisposing etiologic factors: (*a*) to avoid the performance of distasteful duty, (*b*) to escape attendance at school, (*c*) to increase personal interest and sympathy, (*d*) to incite pity and induce the liberal giving of alms, (*e*) to influence the jury and secure a larger verdict for alleged personal damages. When no other plausible reason can be discovered nervous instability may be responsible.

The important diagnostic criteria are often overlooked that: (*a*) self-inflicted injuries are never noted on anatomic situations inaccessible to individual digital manipulation, and (b) that in appearance factitious lesions do not conform to any recognized dermatologic conditions.

The case reported is that occurring in a school teacher, aged 25, exceedingly nervous, who showed nitric acid and traumatic lesions of the skin.

LEVIN, New York.

INVOLVEMENT OF NERVOUS SYSTEM DURING PRIMARY STAGE OF SYPHILIS. UDO J. WILE and CLYDE K. HASLEY, J. A. M. A. **76**: 8 (Jan. 1) 1921.

The authors report the result of their studies on the spinal fluid in early syphilis. They conclude: Deviation from the normal in the spinal fluid of 221 cases of syphilis in which only the chancre was present, was found in forty-nine cases, or 22 per cent. of the cases examined. Increase in globulin and albumin virtually parallel was the most constant of the abnormal findings, occurring in twenty-five cases. Pleocytosis was the next frequent finding, occurring in twelve cases. The positive Wassermann test in the fluid occurred less frequently than the other two findings, being present in but eight cases. Within certain limitations, any single one of the above-mentioned deviations from the normal occurring alone must be regarded as evidence of early central nervous system involvement.

WAUGH, Chicago.

UN CAS DE XANTHOMES MULTIPLES DITS "EN TUMEURS" AVEC DIABETE CONCOMITANT (A CASE OF MULTIPLE XANTHOMA TUMORS ACCOMPANIED BY DIABETES). C. DE GAMBRAT, Ann. de dermat. et syph. **11**:497, 1920.

The patient, a man of 40 years, had had the lesions and the glycosuria for seven years. The tumors, situated on the extremities, were typical xanthomas. Furthermore, there was a hypercholesterinemia.

A biopsy examination seemed to show a cholesterin infiltration of the connective tissue. Cholesterin granules were demonstrated in the vessel walls and extending into the surrounding tissues elsewhere than in the tumors themselves, which abounded in cholesterin. This leads one away from the theory of cholesterin degeneration in situ.

It is thought that the infiltrating granules, acting as foreign bodies, give rise to: a phagocytosis, this rôle falling to certain specialized connective tissue cells ("xanthomateuses") ("cholesterinophags"); and a fibrous reaction.

PARKHURST, New York.

THE PATHOLOGIC PROCESS IN EARLY AND LATE SYPHILIS. GEORGE MANGHILL OLSON, Urol. & Cutan. Rev. **24**:12 (Dec.) 1920.

Olson gives the following conclusions: 1. The total amount or quantity of spirochetal toxin determines the character of the lesion in all stages of syphilis. 2. The tissues at the site of the early lesions of syphilis are subjected to a relatively small total amount of spirochetal toxin. They are, therefore, essentially benign and tend to complete recovery. The tissues at the site of the lesions in late syphilis are subjected to a relatively large total amount of spirochetal toxin. There is, therefore, a tendency to degeneration and destruction of tissue. 4. Clinical and experimental data indicate that the patient with syphilis is in a state of increased resistance or relative immunity. 5. Anaphylaxis or decreased resistance probably plays no part in the production of the lesions of syphilis.

LEVIN, New York.

LA PACHYDERMIE VORTICELLEE DU CUIR CHEVELU (CONVOLUTED PACHYDERMA OF THE SCALP). C. LENORMANT, Ann. de dermat et syph. **5**:225, 1920.

A woman of 30 years presented a congenital malformation of the scalp which, though at first small, had gradually enlarged so as to cover all but the right frontal and lower right temporal regions. The topography of the tumor resembled the cerebral convolutions, and its weight was such as to cause distortion of the left brow and ear.

The condition is held to be the same as the cutis verticis gyrata of the Germans, and the author has found only twenty-nine other cases in the literature. Some of the cases appeared to be of chronic inflammatory origin, others congenital.

In a previous case, less extensive, surgical intervention in steps had been successful. Lenormant followed suit, and by a single operation secured marked improvement.

PARKHURST, New York.

THE WASSERMANN TEST AND ITS LIMITATIONS IN DIAGNOSIS AND TREATMENT. ROHDENBURG, GARBAT, SPIEGEL and MANHEIMS, J. A. M. A. **76**:146 (Jan.) 1921.

The authors' experiences are based on a series of 28,000 tests. The following conclusions are given:

The Wassermann test is not infallible, and its value is greatest when its limitations are clearly comprehended. Some of these limitations are dependent on technical details with which the clinician must familiarize himself until the time arrives when all serologists agree on a standardized technic.

Other limitations are dependent on the biologic processes involved. Accepting the test as diagnostic in the vast majority of cases, it also serves as an indication of the success of treatment. The data presented in this report emphasize that the earlier treatment is instituted and the more vigorous the early treatment is, the greater the likelihood of obtaining a serologic cure.

WAUGH, Chicago.

UEBER ERFRIERUNGEN (FROSTBITE). ALFRED PERUTZ, Arch. f. Dermat. u. Syph. **123**:715, 1916.

It is difficult to determine gradations of frostbite, but Perutz has found it desirable to outline his cases according to this scheme:

1. Congelatio superficialis: (a) Dermatitis congelationis erythematosa; (b) dermatitis congelationis bullosa.
2. Congelatio profunda: (a) Dermatitis congelationis gangraenosa.

Among Perutz' patients were many that might be classified as "lympathic types." Forty-seven had hyperhidrosis of the feet; 39 had female distribution of hair; 38 had cutis marmorata; 41 had dermographism, and 16 had scapula scaphoides; 26 patients suffered with intestinal disorders.

Conservative treatment was found the best. Encouraged by the results of the roentgen ray in the treatment of pernio, Perutz tried deep roentgen-ray treatment with fair results in frostbite.

GOODMAN, New York.

PERIOSTITES SYPHILITIQUES ANTEROSEOLIQUES (PREROSEOLAR SYPHILITIC PERI-OSTITIS). L. CHATELLIER, Ann. de dermat. et syph. **10**:444, 1920.

There are thirty cases in the literature, to which Chatellier adds that of a child of 18 months. The patient, a healthy bottle-fed infant, presented a syphilitic chancre in the right lumbar region with an inguinal adenopathy and many spirochetes. A few days after the appearance of the chancre the mother noticed that the child seemed to be having pain in its left leg, which was swollen. The right humerus also became affected, and an examination revealed the presence of a true syphilitic periostitis, which soon recovered with the employment of deep hypodermic injections of a proprietary arsphenamin preparation. The chancre disappeared simultaneously. At no time did a rash appear.

This precocious manifestation belongs in the same category with preroseolar syphilitic meningitis, phlebitis, fever and neuralgias, and forms another chapter in the preoroseolar pathology of syphilis.

PARKHURST, New York.

THE HUMAN BREAST: A PLEA FOR WELL DIRECTED TREATMENT BASED ON MORE ACCURATE DIAGNOSIS. W. S. BRAINBRIDGE, Illinois M. J. **38**:473 (Dec.) 1920.

According to the author, surgeons are prone to advise operative removal of the breast on insufficient evidence. Every nodule in the breast is not malignant, nor does its presence always portend malignancy. Since the public has learned to seek medical advice earlier for diseases of the breast, it behooves the profession to make accurate diagnoses based on sound interpretation of the signs and symptoms presented. Issue is taken with that group of surgeons who believe that every nodule in the breast indicates radical removal

The author has encountered a number of cases in which radical removal had been advised because of improper interpretation of the findings. Among these cases are mentioned nodules of the breast due to intestinal stasis, pelvic and tonsillar infections, Hodgkin's disease, syphilis and disturbed endocrine function.

MICHAEL, Houston, Texas.

DEUX ACCIDENTS DONT L'UN MORTEL, ARRIVES DEUX OU TROIS JOURS APRES L'INJECTION DE 0,90 CENTIGRAMMES DE NOVARSENOBENZOL CHEZ DEUX SYPHILITIQUES PRIS EN PERIODE SECONDAIRE (TWO ACCIDENTS, ONE OF THEM FATAL, OCCURRING TWO OR THREE DAYS AFTER THE INJECTION OF 0.9 GRAM OF NEO-ARSPHENAMIN IN TWO PATIENTS WITH SECONDARY SYPHILIS). M. GIBERT, Ann. de dermat. et syph. **10**:463, 1920.

Both patients presented active secondary manifestations, including roseolae. In each case the course began with injections of biniodid of mercury, followed by increasing doses of the arsenic, starting with 0.3 gm. and advancing slowly to 0.9 gm. The first patient was suddenly attacked with epileptiform symptoms and soon died. The other patient experienced a violent febrile reaction accompanied by a scarlatiniform erythema which was followed by desquamation.

PARKHURST, New York.

ECZEMA VERRUCO-CALLOSUM NODULARE (PRURIGO NODULARIS). EDUARD AHRENS, Dermat. Wchnschr. **71**:823 (Oct.) 1920.

A typical case of this disease is described with histologic examination. Objection is raised to the term prurigo nodularis because of the dissimilarity of the disease to the ordinary prurigos. Similar objections are also made to names involving the word urticaria (urticaria perstans, etc.) or lichen (lichen obtusus, etc.). Because of certain eczematous features of the disease similar to Unna's eczema callosum the author suggests the new name eczema verruco-callosum nodulare for the condition.

KETRON, Baltimore.

ETUDE COMPAREE DE L'ELIMINATION URINAIRE DE L'ARSENIC PENDANT L'ADMINISTRATION INTRAMUSCULAIRE DU SULFARSENOL (COMPARATIVE STUDY OF THE URINARY ELIMINATION OF ARSENIC FOLLOWING THE INTRAMUSCULAR ADMINISTRATION OF SULFARSENOL). P. GALONNIER, Ann. de dermat et syph. **8-9**:381, 1920.

Urinalyses were made after the administration of sulfarsenol and of neo-arsphenamin, intravenously as well as intramuscularly, and the results are shown by means of curves.

In the case of intravenous administration, the elimination curves of a proprietary arsphenamin preparation and neo-arsphenamin are quite similar. The former appeared in the urine appreciably one hour after the injection, the latter, ten minutes, and both reach their maximum of excretion at the end of the first day.

After intramuscular injection the second day usually sees the maximum output. Whether the route is intravenous or intramuscular, the last trace of

the arsenic is not excreted until the sixth day. There is no proportion between the amount of arsenic introduced and the amount eliminated. The kidney eliminates only a relatively small part of the arsenic, but a study of the urine is nevertheless of value during treatment.

PARKHURST, New York.

ZUR KENNTNIS DER PSORIASIS ARTHROPATHICA (PSORIATIC ARTHRITIS). G. NOBL, Arch. f. Dermat. u. Syph. **123**:632, 1916.

Nobl gives the histories of a number of patients who had an association of arthritic disease and psoriasis. He believes that there may be a single etiologic factor involved, or that one may give rise to the other by lowering resistance. It may not be too far-fetched to believe that the virus may have a special affinity for the structures of the joints and the tissues of the skin. One must consider also whether the unknown cause of psoriasis or its metabolic products may not be the cause of the arthritis. Nobl leaves to posterity the answer to the problems he raises.

GOODMAN, New York.

IL PRIMO CASO DI SODOKU ILLUSTRATO IN SERDEGNA (THE FIRST CASE OF SODOKU REPORTED IN SARDINIA). D. L. ANNIBALE, Gior. ital. d. mal ven. **61**:531 (Oct. 7) 1920.

Annibale reports the case of an elderly woman who presented a diffuse inflammatory edema of the hand which rapidly spread to the arm and chest. twelve days after receiving a rat-bite. The patient had high temperature and the whole cutaneous surface was covered with a macular eruption. The fever appeared in the form of attacks, like those of malaria, during which the patient complained of severe pains over the long bones. The author discusses the differential diagnosis with malaria and syphilis. Arsenical treatment cured the patient.

PARDO-CASTELLO, Havana.

ANTIANAPHYLAXIE DIGESTIVE (DIGESTIVE ANTI-ANAPHYLAXIS). P. PAGNIEZ and P. VALLERY-RADOT, Ann. de Dermat. et Syph. **10**:436, 1920.

Certain urticarias and dermatoses of anaphylactic origin can be prevented simply by having the patient eat a minute amount of the offending food an hour before taking a meal of which it is to be a part. The authors, seeking some more convenient method, found that the same favorable result could be secured after the injection of one-half gram of peptone. If used for a short time, a permanent cure may be attained in many cases. This method of treatment is worthy of trial in any of the recurrent anaphylactic phenomena so resistant to ordinary therapeutic measures.

PARKHURST, New York.

UEBER EINEN DURCH INTRAVENOESE JODDARREICHUNG GEHEILTEN FALL VON BLASTOMYKOSE (CASE OF BLASTOMYCOSIS HEALED WITH INTRAVENOUS IODID INJECTIONS). WALTHER PICK, Arch. f. Dermat. u. Syph. **123**:727, 1916.

Pick reports a case of blastomycosis treated with sodium iodid according to the method of Klemperer. The results were good.

(Klemperer reported the use of sodium iodid intravenously for tertiary syphilis in 1915. Doses of from 10 to 20, and even as high as 50 gm. of

sodium iodid in a 10 per cent. solution were given intravenously without the accompaniment of the ordinary by-effects of such dosage of the iodid if given orally. The dose may be repeated at about four day intervals.)

GOODMAN, New York.

ATROPHIE UNGUEALE CONGENITALE (CONGENITAL ATROPHY OF THE NAILS). R. LUTEMBACHER, Ann. de dermat. et syph. **10**:461, 1920

A woman, aged 40, had had the condition since birth. She was short in stature, rather stout and her skin was pale, dry and slightly xerodermic; her eyes were blue and her hair brown and dry. None of her three children presented any malformation. The report is well illustrated.

PARKHURST, New York.

UEBER DIE BEHANDLUNG DER ANGINA PLAUT-VINCENT MIT SALIZYLSAURE (THE TREATMENT OF VINCENT'S ANGINA WITH SALICYLIC ACID). WALTHER BENNIGSON, Dermat. Wchnschr. **71**:888 (Oct.) 1920.

The author believes that a "nonspecific" therapy is to be preferred in the treatment of this disease because of the possibility of missing an underlying syphilis when neo-arsphenamin is used. He reports good results in the use of 10 per cent. salicylic acid in equal parts of alcohol and glycerin after the method of von Barth.

KETRON, Baltimore.

DYSTROPHIE, NAEVI VASCULAIRES ET BOUFFEE DELIRANTE (DYSTROPHY, VASCULAR NEVI AND DELIRIOUS OUTBREAKS). R. BENON and H. LUNEAU, Ann. de dermat. et syph. **5**:244, 1920.

This observation, in a boy of 13 years, is considered as an example of cerebrospinal degeneracy. The advent of delirium could be considered as evidence of the fragility of the central nervous system. From the somatic aspect, a complex picture was presented: left hemidystrophy and antagonistic dystrophy (a superior hypotrophy including the thoracic, scapular and cervical regions, and an inferior hypertrophy); there were bilateral vascular nevi following lines of nerve distribution. It is possible that this clinical fact may lend support to the theory of nervous origin of vascular nevi.

PARKHURST, New York.

DIAGNOSTICO Y EVOLUCION DE UN CASO DE SIFILIS PULMONAR (DIAGNOSIS AND EVOLUTION OF A CASE OF PULMONARY SYPHILIS). J. C. MONTANARI and P. I. ELIZALDE, Prensa med., Argentina **7**:152 (Nov. 10) 1920.

The patient had contracted syphilis from her husband five years before. Subsequent to an attack of influenza and bronchopneumonia, she complained of pain in the chest, expectoration and fever. On examination several foci of bronchopneumonia were found to be present in the left lung. The tubercle bacillus was absent. After fifty days of sickness, the patient was practically in the same condition; the diagnosis of syphilis was then established and specific therapy effected a cure in a short time.

PARDO-CASTELLO, Havana.

A CASE OF "ARGYRIA." C. E. SMITH, Illinois M. J. **38**:517 (Dec.) 1920.

The patient had a chronic infection of the maxillary sinus for which silver nitrate in quarter grain doses to be taken three times a day had been prescribed. This treatment was continued for three months when it was noted that the skin of the face and hands had become pigmented.

MICHAEL, Houston, Texas.

ERYTHROMELALGIE-ADRENALINE (ERYTHROMELALGIA AND EPINEPHRIN). L. CHATELLIER, Ann. de dermat. et syph. **5**:261, 1920.

After various remedies had been tried in a case of erythromelalgia, and all to no avail, one-fourth of a milligram of epinephrin was injected subcutaneously and ten minutes later the pain disappeared. A rapid recovery ensued.

PARKHURST, New York.

ZUR BADERBEHANDLUNG DES EKZEMAS (TREATMENT OF ECZEMA WITH BATHS). KLEINSCHMIDT, Dermat. Wchnschr. **71**:950 (Nov.) 1920.

The author reports excellent results in the treatment of generalized weeping or crusted eczemas by the use of Balnazid baths. Balnazid is an acid tar preparation manufactured under the direction of Klingmüller, because ordinary tar will not mix with the bath except through an alkaline medium. Since the irritating secretions from eczema have an alkaline reaction, the bath should be acid.

KETRON, Baltimore.

CONTRIBUTO ALLA TERAPIA DI ALCUNE DERMATOSI CON LA NEVE CARBONICA (NOTES ON THE TREATMENT OF SOME DERMATOSIS WITH CARBON DIOXID SNOW). N. R. GARZELLA, Gior. ital. d. mal. ven. **61**:545 (Oct. 7) 1920.

This article refers to the good results obtained by the author in the treatment of lupus erythematosus, epithelioma, lupus vulgaris, nevi, keloid and venereal (soft) sore with applications of carbon dioxid snow.

PARDO-CASTELLO, Havana.

A PROPOS DU PITYRIASIS RUBRA (CONCERNING PITYRIASIS RUBRA). S. NICOLAU, Ann. de dermat. et syph. **5**:265, 1920.

It appears that the author was misquoted by Audry and Nanta in their article on "Pityriasis Rubra of Hebra and Leukemic Erythroderma" which was published in the *Ann. de Dermat. et de Syph.*, Sept. 10, 1919. He is in full agreement with their conclusions as to the leukemic or pseudoleukemic origin of these cases.

PARKHURST, New York.

ULCERI VENEREE MULTIPLE DELLA LINGUA (MULTIPLE VENEREAL ULCERS OF THE TONGUE). P. MINASSINI, Gior. ital. d. mal. ven. **61**:560 (Oct. 7) 1920.

This paper gives the report of a case of three small ulcers, one on the tip of the tongue and two on the edges, from which the Ducrey bacillus was recovered. No other lesions were found on the genitals or other parts.

PARDO-CASTELLO, Havana.

CHANCRE SYPHILITIQUE DU NOMBRIL CHEZ UN NOURISSON (A SYPHILITIC CHANCRE OF THE UMBILICUS IN A NURSLING). R. I. VAN GELDER, Acta Dermat.-Vener. **1**:208 (Oct.) 1920.

A child, born during the incubation period of a chancre on the mother's labium majus, later presented a suspicious lesion of the umbilicus, which was found to harbor *Spirochaetae pallidae*. This was evidently a case of acquired syphilis rather than hereditary, but unfortunately the exact manner of the infection could not be ascertained.

Umbilical chancre is rare in the literature, but the author is convinced that it occurs not infrequently, being difficult to detect in the umbilical wound. Congenital syphilis being excluded, and a dark field examination being possibly negative, only the occurrence of a secondary eruption or of a positive Wassermann reaction could decide the diagnosis.

PARKHURST, New York.

RADIUM IN THE TREATMENT OF LUPUS ERYTHEMATOSUS ARTHUR JORDAN, Urol. & Cutan. Rev. **24**:10 (Oct.) 1920.

The writer states that no benefit is to be derived from the internal treatment of lupus erythematosus. He is of the opinion that local applications afford the only means of obtaining remedial success. Ten patients were treated with radium during the past year, and, although the results have not been uniformly satisfactory, relief was given, and in only one case was there a recurrence.

The technic employed consisted in the application of a 10 mg. plaque of radium enclosed in a screen of tinfoil covered with a rubber dam. The plaque was applied to cover not only the lesion, but to include from 1/16 to 1/8 inch of healthy skin. Crusts and scales were removed before the exposure, which usually lasted from twenty to thirty minutes. Further applications were not made until evidence of erythema had disappeared.

LEVIN, New York.

A SPINAL SIGN IN GASTRIC CRISES OF TABES. WILLIAM BROWNING, Med. Rec. **98**:728 (Oct.) 1920.

The sign as described by Browning is a small area of tenderness just to the left of the spinal column at about the level of the fifth dorsal interspace. A gentle stroke over this area with the thumb brings an expression of pain from the patient. The author does not believe these attacks of gastric crises are of central origin but rather the result of general systemic disturbance varied in nature.

TOMLINSON, Omaha.

UEBER DIE INTRADERMALE REAKTION AUF SYPHILIS MIT NOGUCHI'S LUETIN (INTRADERMAL TEST FOR SYPHILIS WITH NOGUCHI'S LUETIN). I. D. PERKEL, Arch. f. Dermat. u. Syph., O. **121**:7 (Feb.) 1915.

The writer reports his findings in ninety-six cases. Fifteen nonsyphilitic patients who gave negative Wassermann reactions, did not react to the luetin tests. Of eighty-one patients with syphilis in different stages, fifty-two gave positive Wassermann reactions and twenty-six gave positive reactions to luetin. In his cases of primary syphilis, he found 33 per cent. positive to luetin; in the cases of secondary syphilis, he found 10 per cent positive; in tertiary

syphilis, 50 per cent. were positive; in tabes, he found 40 per cent. positive; in cerebrospinal syphilis, 33 per cent. were positive.

The author feels that a great deal more work must be done before we can be certain of the specificity of luetin.

HEITHAUS, Cleveland.

ACQUIRED SYPHILIS IN THE AGED. BURTON PETER THOM, Med. Rec. **98**:730 (Oct.) 1920.

Syphilis contracted in old age is more severe than when contracted earlier in life. The incubation period of the chancre is longer and this lesion is much more pronounced, often simulating malignancy. The adenopathy also is more distinct than in the young, and both the chancre and adenopathy are of slow evolution. Secondary eruptions appear early and are invariably papular. Iritis is present in a high percentage of cases at this stage. Constitutional disturbance is extreme and may rapidly overwhelm the patient. Tertiary lesions appear early.

Treatment should be instituted early and given as intensively as is consistent with the condition of the kidneys and cardiovascular system of advanced age.

TOMLINSON, Omaha.

NACHTRAG ZU MEINER ARBEIT: BEITRAG ZUR KLINIK UND PATHOLOGIE DES PEMPHIGUS FOLIACEUS (CLINICAL AND PATHOLOGIC STUDY OF PEMPHIGUS FOLIACEUS. SUPPLEMENTARY NOTE). J. FABRY, Arch. f. Dermat. u. Syph., O. **121**:237 (April) 1915.

The author, in 1904, reported a case of this character which became a universal dermatitis. For more than fourteen years this condition continued while the patient's general health remained fairly good. The urine was always negative for sugar and albumin.

Atropin, arsenic and arsphenamin injections of serum, roentgen-ray therapy and many local applications had no beneficial effect on the condition. The patient died from carcinoma of the esophagus.

Strange to say, in this case the period of bullous lesions lasted only from six to eight weeks, and for fourteen years after that there was only a universal dermatitis with marked infiltration. There were no lesions of the mucous membranes at any time.

HEITHAUS, Cleveland.

EXPERIMENTAL SYPHILIS IN THE RABBIT. V. SYPHILITIC AFFECTIONS OF THE MUCOUS MEMBRANES AND MUCOCUTANEOUS BORDERS. WADE H. BROWN and LOUISE PEARCE. J. Exper. M. **32**:497 (Nov.) 1920.

A number of rabbits in the series of 200 were found to have characteristic lesions on the mucous surfaces, being distributed between the nose and nasolacrimal system, eyelids, genital and anal regions. The lips and buccal surfaces were less subject to these lesions. Necrosis and ulceration eventually developed in many cases and persisted actively for many months.

On the eyelids, small elevated papules or ulcerations appeared, occasionally being of a large granulomatous type. Secondary ulceration was common in the lesions of the genital area, while those lesions about the anus were of a papillomatous type.

JAMIESON, Detroit.

ZUR PATHOGENESE UND KLINIK DER ICHTHYOSIS (PATHOGENESIS AND CLINICAL STUDY OF ICHTHYOSIS). G. STÜMPKE, Arch. f. Dermat. u. Syph. **123**:1070, 1916.

The different conceptions in the literature regarding the etiology of ichthyosis gave Stümpke the opportunity to describe a case in which the diagnosis was established beyond a doubt both clinically and histologically, and in which the symptoms did not appear until the patient was 14 years old.

Neisser, Brocq and Hebra did not observe a case which first appeared after two years. Thibierge and Tommasolli mention cases which first appeared at 10 to 12 years, or even later. Gassman in his monograph on ichthyosis was rather skeptical regarding the occurrence of such cases.

GOODMAN, New York.

DEUX CAS DE PAROTITE SYPHILITIQUE (TWO CASES OF SYPHILITIC PAROTITIS). GERDA KJELLBERG, Acta Dermat.-Vener. **1**:263 (Oct.) 1920.

The author reports two cases of this rare condition, both occurring in women with undoubted syphilis. Both presented other tertiary lesions. Tuberculosis was ruled out by the absence of tuberculous lesions elsewhere, and the diagnosis of syphilis was made certain by the quick response to antisyphilitic treatment.

PARKHURST, New York.

UEBER EINE NOCH NICHT BESCHRIEBENE PURPURAFORM NACH GENUSS VON SARDELLENBUTTER (PURPURA FOLLOWING USE OF SARDINE BUTTER). OTTO SACHS, Arch. f. Dermat. u. Syph. **123**:835, 1916.

Sardine butter is added to the list of causes of urticaria, erythema and purpura. The interesting point in the four cases of this condition observed concerns the possibility that the lead and tin of the containers were the factors producing the eruption. Of course, idiosyncrasy may also play a part as in other toxic and medicinal exanthems.

GOODMAN, New York.

SOME COSMOPOLITAN SUDAN SKIN AFFECTIONS. A. J. CHALMERS and N. MACDONALD, J. Trop. M. **23**:150 (June 15) 1920.

Two cases of herpes iris are described, in one of which the typical lesions were on the face, in the other the hand, forearm and lips were involved.

JAMIESON, Detroit.

DE L'INEGALITE PUPILLAIRE PRECOCE DANS LA SYPHILIS (EARLY DEVELOPMENT OF PUPILLARY INEQUALITY IN SYPHILIS). S. NICOLAU, Ann. de dermat. et syph. **7**:283 (Sept.) 1919.

Pupillary inequality without the presence of the Argyll Robertson sign can be demonstrated in all stages of syphilis. It can be observed as early as the fourth week after the appearance of the primary lesion. It coexists with lymphocytosis of the cerebrospinal fluid, both in the primary and secondary phases. It is of presumptive diagnostic value in latent syphilis, or in the presence of doubtful lesions. Its presence is an indication for a careful watch

of the central nervous system in syphilis. The author observed the phenomenon 22 times in seventy-five cases of primary syphilis, 153 times in 409 cases of secondary syphilis, and 25 times in sixty-eight patients with tertiary manifestations.

BECHET, New York.

CASE OF DELHI BOIL OR SORE (ORIENTAL SORE, ALEPPO BOIL). J. H. STOWERS, Proc. Roy. Soc. **2**:3 (Sept.) 1920.

A woman, aged 34, developed slightly inflammatory nodules below the right eyelid and on the left forearm. The nodules were red, firm and indurated. Scrapings from the lesions revealed the presence of Leishmania tropicum in considerable numbers. Treatment by injecting antimony oxid was begun.

GUY, Pittsburgh.

CHAULMOOGRA OIL IN LEPROSY. T. A. HENRY, J. Trop. M. **23**:249 (Oct. 15) 1920.

This article deals with the history and derivation of chaulmoogra oil, and is chiefly of chemical interest.

JAMIESON, Detroit.

CASE OF DEMODEX IMPETIGO. ARTHUR WHITFIELD, Proc. Roy. Soc. **2**:3 (Sept.) 1920.

Clinical impetigo, unusually circinate in shape on the nose and cheek of an adult was demonstrated to be due to the *Demodex folliculorum.*

GUY, Pittsburgh.

THE TREATMENT OF ULCUS TROPICUM. N. CRICHLOW, J. Trop. M. **23**:227 (Sept. 15) 1920.

The author believes in the administration of galyl at the outset followed by local antiseptic baths and applications.

JAMIESON, Detroit.

DERMATOLOGIC ABSTRACTS

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

MYCOSES IN PERU. E. ESCOMEL, An. de la Facultad de Med. **3**:95 (Sept.-Oct.) 1920.

Escomel gives an illustrated description of four different types of mycosis affecting the feet. One is a typical *pinta,* with patches over the body. In the others a trichophyton, penicillium or discomyces was responsible for the lesions.

BLASTOMYCOSIS IN PERU. S. LOZADA BENAVENTE, An. de la Facultad. de Med. **3**:109 (Sept.-Oct.) 1920.

The heart of tropical America seems to be the special home of blastomycosis which must be distinguished from the lesions resembling it for which Leishman bodies or other agents are responsible, especially the group of tropical ulcers known as espundia. The discovery by Escomel in 1914 of the blastomyces in certain cases explained the failure of the treatment which is effectual in Leishmaniasis. Since then blastomycosis has been differentiated in Bolivia, Brazil, Uruguay and Paraguay, and Lozada here describes a large number of advanced

cases affecting face and throat after five or six years of the disease. There was no actual suppuration in any of the ulcerations, but the parts affected increased remarkably in size, the lower lip for instance hanging down to cover almost the entire lower jaw. He had opportunity for postmortem examination in a large number of these blastomycosis patients who had succumbed to influenza, but he never found any signs of the process below the vocal cords.

APLASTIC ANEMIA FOLLOWING ARSPHENAMIN. H. GORKE, München. med. Wchnschr. **67**:1226 (Oct. 22) 1920.

Gorke reports two cases of aplastic anemia in women, in which the clinical manifestations and the blood picture seemed to be the direct result of arsphenamin treatment. One case ended fatally and the other in recovery. The disease is very rare and occurs only in persons who are very susceptible to arsphenamin. Only the immediate withdrawal of arsphenamin will check its progress.

SYPHILIS IN RELATION TO PREGNANCY. R. HORNUNG, Zentralbl. f. Gynäk. **44**:1222 (Oct. 23) 1920.

Hornung gives statistics from the University Woman's Hospital in Kiel bearing on the effect of syphilis on pregnancy. During the four-year period, 1910 to April 1, 1914, 221 pregnant women were observed who were infected with syphilis in some form or other. There were three twin pregnancies, the outcome of which is of special interest. In one of these, presenting a positive Wassermann reaction but no clinical signs of syphilis, delivery occurred at the end of the sixth month. The first child was stillborn; the second child died the day it was born. The living child gave a negative Wassermann reaction; no serum could be obtained from the stillborn child. Neither child presented any syphilitic changes. In the second case, the mother gave a positive Wassermann reaction, but no clinical evidence of syphilis. About the middle of the seventh month a living child was first born, followed by a macerated stillborn child. The live child is thriving but has twice caused partial inhibition of hemolysis. In the third case of twin pregnancy the mother presented florid syphilis in the second stage and a positive Wassermann reaction. At approximately normal term two living children were born, both of which gave positive serum reactions but no clinical evidence of syphilis. It is thus evident that the results of syphilitic infection are not necessarily the same for both fetuses. No cases were observed in which both twins were stillborn. In the whole series, birth of a living child occurred in 186 cases, or 85.33 per cent.; there were twenty-four (13 per cent.) premature births, seven of which were, however, determined by other causes than syphilis. There was thirty (13.76 per cent.) stillbirths, all after the fourth month. Of the 124 children of the mothers who gave positive Wassermann reactions but no clinical evidence of syphilis, three presented clinical signs of syphilis—pemphigus specificus, in each case—but gave a negative Wassermann reaction. Of the 73 children given the Wassermann test, 13 reacted positively.

SYPHILIS AND KIDNEY DISEASE. J. LANKHOUT, Zentralbl. f. inn. Med. **41**:2649 (Oct. 16) 1920.

Lankhout describes two cases of nephritis in syphilitic men of 26. The acute nephritis developed insidiously in the course of hospital arsphenamin treatment, and the albumin content of the urine ran up to 2 per cent. but there was very little hemorrhagic tendency. The kidney functioning did not seem much disturbed, notwithstanding the rebellious edema. The blood pressure was normal. The headache and apathy in such cases are liable to be mistaken for uremia. After six or eight weeks of treatment the edema had almost completely subsided, and the albumin dropped to 1 or 2 per thousand, so the patients were allowed to get up and gradually return to active life. The

syphilis was of one or two years' standing in these cases, and systematic mercurial treatment had been given. The toxins from the syphilis virus are probably responsible for the kidney disease, which is more of a nephrosis than a nephritis. The specific treatment did not seem to benefit the kidney disease in his cases; possibly the mercury had rendered the kidneys more susceptible. Neither man had any signs of syphilis at the time, and both have regained full strength and earning capacity. Recent reexamination of one of the patients showed no albumin in the urine. The urea was from 0.85 to 2 per cent. and specific gravity, 1.009 to 1.025, but the total output of urine was low, only 794 c.c. in twelve hours.

Society Transactions

SOCIETY OF DERMATOLOGY AND SYPHILOLOGY, MADRID

Meeting held Nov. 5, 1920

DR. AZÚA, *in the Chair*

SILVER SALVARSAN IN THE TREATMENT OF SYPHILIS. DRS. COVISA and BEJARANO.

We have treated forty patients, including patients with primary, secondary and tertiary syphilis and neurosyphilis. Besides its action on the Wassermann test, silver arsphenamin causes these three remarkable effects on primary syphilis: (1) quick disappearance of the chancrous induration, (2) disappearance of spirochetes with 10 cg. of the drug, (3) quicker clearing of local adenopathies. In secondary and tertiary cases silver arsphenamin acts energetically and quickly in surprisingly small doses.

The action of this drug on the Wassermann test has been discussed by German authors. As representative of the results obtained by us, we may mention two cases of serum positive primary syphilis and four cases of secondary syphilis. In the first two cases the Wassermann test became negative with 70 cg. and 40 cg. of silver arsphenamin, respectively. In the secondary cases the reaction became negative with doses from 1.20 to 1.40 gm. No definite statement can be made as yet as to its permanent effect on the Wassermann reaction because our patients disappeared from observation as soon as their lesions healed. So far, we have had only one relapse after two months, but in this case the dose was rather small (1.05 gm.). We have employed Azuá's apparatus, using 1 per cent. dilutions with intervals of from four to five days. As a rule, we have not seen fever but rather mild venous pains caused by thrombi and periphlebitis.

Our only accidents have been two slight angiotoxic crises, accompanied by urticaria and arsenical herpes zoster on the right side of the face. We have always employed the drug without mercury.

Neurosyphilis.—We treated a patient with progressive general paresis with a total dose of 1.40 gm. of silver arsphenamin. The patient's symptoms improved very much; however, we do not attach much importance to that one case. We have at present four patients under treatment, three with progressive general paresis and one with tabetic paresis, whom we are treating both intraspinally and intravenously. We cannot draw any conclusions as yet.

Altogether, silver arsphenamin is, in our opinion, an advance in the treatment of syphilis, both for its effects on the lesions and the small size of the dose required, as compared with other arsenicals.

DISCUSSION

DR. GIMENO: My observations are based on sixteen cases in which secondary lesions prevailed. I may state that silver arsphenamin is clinically superior to the other neo-arsphenamins; it also influences the Wassermann test very quickly. I have observed that when syphilis is accompanied by tuberculosis, the latter seems to flare up.

Dr. Barrio de Medina: I think Drs. Covisa and Bejarano have been very fortunate in the treatment of their patients, since I have used silver arsphenamin for several months, and my results do not by far approach theirs. I must add that I have not compared very strictly its results to those obtained with other arsphenamin preparations. I have just injected the drug and noted its effects. As a result, I may say that, clinically, it seems somewhat more effective than neo-arsphenamin, but its superiority is not distinct. I remember a case of secondary syphilis with general papular manifestations and patches on the scrotum and balano-preputial sulcus, in which the lesions did not disappear until the sixth week.

As regards its influence on the Wassermann test, I have observed this with somewhat more care, and I do not believe it is more effective, since I have two cases which I began to treat on the sixth and the twelfth or fourteenth day, respectively, from the initiation of the chancre, and both of the patients gave a ++ Wassermann reaction after a complete course of treatment during an interval of two months. I give all injections of silver arsphenamin with a syringe dissolved in 5 to 10 c.c. of water.

Therefore, I think this is just one more arsphenamin brand to be used in some selected cases, since it has some disadvantages such as the number of injections, fourteen, its more difficult technic, the dark, nearly black color of the solution, the increased pain and the formation of large nodules, infiltration, and other disadvantages already mentioned by Dr. Bejarano.

Dr. Sainz de Aja: I think that silver arsphenamin is a twin brother of luargol, both as regards dosage and its thrombosis effects on the veins. When it extravasates, it proves, as ectrargol, to be much more painful than other arsphenamin brands because of its silver contents. It should not be associated with any mercurial preparations, excepting the most inert ones, such as benzoate. In so far as choosing between the syringe or apparatus, I think all possible precautions should be taken, but I have always used a 10 c.c. syringe.

I consider it inferior to arsphenamin and superior to neo-arsphenamin. Therefore none of them should be rejected, but we should select the most appropriate in any particular case.

Dr. Sanz de Grado: I agree with the statements of Drs. Covisa and Bejarano. I am now treating a patient. This case will give me the opportunity of checking the action of silver arsphenamin on the Wassermann reaction. I shall report the result to the Academy.

RICKETS AND HEREDITARY SYPHILIS. Dr. Portilla.

I report the cases of two young girls who were admitted to the hospital in Dr. Sainz de Aja's service. Both had bone lesions, due in one case to rickets and in the other to hereditary syphilis. The value of the roentgen-ray examination in diagnosis must be recognized since the roentgenograms show the different behavior of bone diseases. Both diseases are frequently associated and the theory has even been advanced that rickets is a form of heredosyphilis. When syphilis involves the bones, there are some cases, such as the present one, in which after the affected organ heals there remain some necrosed bones which will delay the final cure until the sequestrums are removed.

CHICAGO DERMATOLOGICAL SOCIETY

Regular Monthly Meeting, Dec. 15, 1920

WILLIAM A. QUINN, M.D., *Presiding*

IDIOPATHIC MULTIPLE HEMORRHAGIC SARCOMA. Presented by DRS. ORMSBY and MITCHELL.

A man, aged 56 years, presented a disorder which began two years previously, following bites by gnats. The evolution of the lesions could not be outlined by the patient.

At the time of presentation the disorder was situated chiefly on the legs and feet which were swollen; the skin was hard and the seat of solid edema. Many nodules, varying in size between that of a pea and that of a small coin, were distributed over these areas. The nodules exhibited various shades of brown chiefly, but some were bluish-red. Two lesions were present on the buttocks, one on the glans penis, and there was a scar following excision of one of the lesions on the finger. The circulation of both legs exhibited a retiform appearance.

DISCUSSION

DR. WILE thought it was a case of the Kaposi type of sarcoma, which did not seem to offer any great difficulty in diagnosis. He was impressed with the large number of small nodular lesions, which had not coalesced as plaques, and believed this was somewhat unusual.

DR. PUSEY agreed with Dr. Wile.

DR. ORMSBY considered the case interesting because the nationality of the patient was different from that in which the disease usually occurred. It practically always occurs in the Jewish race, and this patient was a Swede.

DR. LIEBERTHAL said that one case reported by him had occurred in an American, but the majority of the cases occurred in Jews and Italians.

ACNITIS. Presented by DRS. PUSEY and SENEAR.

The patient was a married woman, 25 years of age, who for five years had had an eruption on the cheeks and chin. There were no subjective symptoms except occasional slight itching. The condition does not vary much but is slightly more apparent in cold weather. She had used Cuticura soap and salve and was said to have received treatment with ultra-violet rays. Her general health was good, and there was nothing of particular interest in her history. A tooth with an abscess had been treated recently and four years ago three infected teeth had been extracted as it was thought that they might be responsible for the condition. There was no history suggestive of tuberculosis in the patient or her family.

On each cheek and on the chin was a patch which at first glance seemed to be merely an erythematous eruption. Examination, particularly with the diascope, showed these patches to consist of a large number of pinpoint to pinhead sized brownish nodules. The patient had been treated with lotio alba, calamine lotion, and a weak ammoniated mercury ointment locally, and had taken iron, arsenic and strychnin pills.

DISCUSSION

DR. STILLIANS thought it was a case of tuberculids or of miliary tuberculosis.

DR. OLIVER considered it a beautiful case of acnitis.

Dr. Ormsby said he had heard somebody say it was a miliary tuberculosis and agreed with that diagnosis.

Dr. Foerster thought it a case of disseminated miliary lupus, such as is found on the face. He considered it rather typical to see the small, individual, discrete lesions which were readily visible as small nodular dots under glass pressure.

Dr. Wile agreed with Dr. Ormsby and Dr. Foerster with regard to the diagnosis of disseminated lupus of the face. His impression of acnitis was that it resembled more closely the so-called papulonecrotic tuberculids, and he felt that if this were so, the case under discussion would better be labeled a true disseminated lupus.

Dr. Senear said that with these two diagnoses in mind he had looked in two textbooks, and while cases may have been reported in the literature as described by Dr. Pusey, the texts described the acnitis as consisting of elevated papular lesions that sooner or later undergo necrotic change with scar formation. He asked for suggestions as to therapy.

Dr. Quinn stated that in one case of acnitis that had been presented at the Presbyterian hospital meeting in 1918, the patient went to war in Europe and came back cured. Previous treatment had given little or no results.

LUPUS VULGARIS. Presented by Dr. Oliver.

The patient was a man aged 24 years, whose disorder began two years ago while he was with the A. E. F. in France. It began at the external nares and had gradually spread until at the time of presentation it involved the entire face. There was a heavily crusted border with marked scarring over the entire face. No subjective sensations were complained of. Search for blastomyces had been negative.

DISCUSSION

Dr. Ormsby stated that he saw the patient a month before and knew that it was a question of tuberculosis or blastomycosis. They had examined the patient carefully for blastomycetes but he had found none. The rapidity and severity of the progress of the disorder pointed against tuberculosis, but he thought, considering everything, that it was a case of that disease. Several Wassermann reactions had been negative. So far as he knew, the patient had received no antisyphilitic treatment.

Dr. Pusey thought the case looked like blastomycosis but did not see why it should not be a syphilid. The edema of the upper lip was suggestive of syphilis, and the verrucous lesions were not unlike syphilis. In view of the rapid progress, he thought that syphilis should be carefully eliminated and that antisyphilitic treatment should be tried.

Dr. Oliver said that a Wassermann test made a week previously was negative. His experience with blastomycosis had been extremely limited. On removing the crusts there was no warty type of lesion underneath, which one usually expected in blastomycosis. He had searched for blastomycetes for two hours on one occasion but had not discovered any, although the patient said that at Camp Dodge Dr. Freeman had found blastomycetes.

RINGWORM OF THE SCALP. Presented by Dr. Stillians.

An American boy, aged 9, at the age of 8 years had a vesicular eruption in the groins, which spread rapidly and soon involved large areas of the body.

extremities and scalp, and which had persisted since that time. At the time of the first examination ten days previously, there were many circinate lesions on the feet, legs, thighs, axillae and trunk, and on the scalp were many vesicular lesions, but there was no apparent involvement of the hair. Since that time the lesions on the body had cleared but had recurred in a small patch of papules and papulovesicles on the abdomen. The lesions on the scalp were still present as circinate, papular patches. The ringworm fungus had not been found at any time.

DISCUSSION

DR. FOERSTER said that the history of vesicles, and the occurrence of groups of lesions such as were seen on the feet and on the back, made him think of the possibility of Duhring's disease. The lesions on the scalp with their exudative ridgelike character, did not come into the picture of Duhring's disease, and he did not know how to interpret them.

DR. MITCHELL thought it was a case of dermatitis herpetiformis.

DR. WILE agreed to the diagnosis of Duhring's disease and was interested to know why Dr. Stillians regarded it as a ringworm.

DR. PUSEY did not see how the lesions on top of the head could be reconciled with Duhring's disease. Those on the body could be, but those on the scalp were round, elevated plaques, and he had never seen lesions of Duhring's disease on the scalp like that.

DR. SENEAR agreed with Dr. Pusey that it was Duhring's disease on the body, but he could not reconcile the scalp lesions with lesions of that disease.

DR. STILLIANS stated that when the patient was first seen practically all of the lesions were circinate and many of them vesicular. The lesions on the scalp were also circinate and vesicular. He had never seen anything like it in Duhring's disease or in ringworm. He thought it was peculiar that a case of Duhring's disease should not show any pigmentation after so long a time, and that itching should not be more intense. He believed that the itching was not as intense as it would be in Duhring's disease, and he had never seen a case without some multiformity of lesions. He had considered Duhring's disease but had discarded that diagnosis. He had searched for the ringworm fungus in the top of the vesicles and also in the hair, but had not found them. The fact that the lesions on the body cleared up so rapidly on white precipitate ointment was also somewhat suggestive of ringworm.

DR. WILE stated that he distinctly saw a patch of pigment on the right side of the trunk. There were also papules and a few blisters elsewhere on the body which, together with the grouping, made the case for him a fairly clear one of dermatitis herpetiformis. The lesions on the scalp of annular configuration he felt afforded no reason for discarding this diagnosis. Dr. Wile felt that such lesions might easily occur in Duhring's disease and probably more often did, but one did not frequently have the opportunity of seeing them on a closely cropped head as in this case. He felt that their annular configuration was decided evidence that they were lesions of Duhring's disease.

LICHEN PLANUS. Presented by DRS. ORMSBY and MITCHELL.

The patient was a man aged 42 years. The duration of the disorder when first seen in June, 1919, was three months. At that time there were papular lesions on the forehead and forearms and other lesions in the mouth. On the forehead there were three pea-sized, bluish-red, flat papules each covered

with a thin scale. On inquiry it was found that there were lesions in the mouth which consisted of bluish-red lines which were grouped and occurred on each side. A series of merurial injections was given and all of the lesions except those in the mouth cleared up. Three new lesions had recently appeared on the forehead.

DISCUSSION

Dr. Stillians thought that the lesions in the mouth looked like lichen planus but was not sure about the other patches.

Dr. Pusey believed it was a case of lichen planus.

Dr. Oliver and Dr. Mitchell agreed.

Dr. Ormsby thought the condition was lichen planus, but originally the case was a little peculiar. The patient did not know he had any lesions in the mouth until Dr. Ormsby made the examination. Practically all of the lesions on the wrist and all but two of those on the forehead had cleared up.

CARCINOMA OF THE BREAST. Presented by Dr. Simpson.

A woman, aged 58 years, was first seen in May, 1920, with a lesion of the breast. At that time she received ten treatments with radium; in July she received eleven and in October six more. She had first noticed a lump in the breast fifteen years ago and this had begun to break down and ulcerate two years ago. Examination showed a primary breast carcinoma, measuring approximately 6 by 6 inches which had never been operated. The carcinoma had disappeared under treatment leaving an area about the size of a silver quarter which had not quite healed. There were small metastases in the supraclavicular region on the left side which had also disappeared under radium therapy.

DISCUSSION

Dr. Zeisler thought the result of treatment was beautiful.

A CASE FOR DIAGNOSIS. Presented by Dr. Senear.

The patient was a girl, aged 3 years. About a year ago an eruption developed on the right cheek and had persisted since that time. The eruption was peculiar because of its linear configuration. It was made up of a number of small papular lesions, indolently inflammatory, and dilated vessels. Scattered among the papules were a number of rather large comedones. There appeared to be slight itching at times. Some scarring had resulted. Various local applications had been used without improvement.

DISCUSSION

Dr. Mitchell thought the telangiectatic vessels suggested a nevus.

Dr. Foerster thought the case could be included in the linear group of comedones, an embryologic defect.

Dr. Pusey asked if the comedones were part of the nevus or a separate thing.

Dr. Senear said he had felt recently that because of the presence of the numerous comedones the case probably fell in the group suggested by Dr. Foerster. He felt that the condition was a nevus, made up of keratotic follicular and vascular elements. The scars which remained occurred where comedones had been present previously.

SCLERODERMA AND VITILIGO. Presented by DR. STILLIANS.

A Syrian, aged 47, a house painter by occupation, about June, 1920, noticed hardening of the skin of the left thigh, and about the same time white patches appeared in the left groin. These progressed and several small, hard patches appeared on the chest. Early in October the same condition appeared on the right thigh, and the white spots spread to the back.

On the outer side of the left thigh scleroderma appeared in a band about 4 inches wide at the center, narrowng at each end. On the chest were three small round areas about an inch in diameter, and on the right thigh was some indefinite thickening of the skin on the external surface. In the left groin and on the small of the back were many large and small patches of vitiligo. The Wassermann reaction was negative.

DISCUSSION

DR. ZEISLER thought it was a case of scleroderma and vitiligo.

DR. OLIVER thought there were patches of vitiligo present but was not so positive about the scleroderma.

DR. FOERSTER was of the opinion that it was a combination of vitiligo and scleroderma.

DR. SENEAR agreed with Dr. Foerster.

DR. STILLIANS was interested in the simultaneous occurrence of these two disorders on the same side of the body. He thought the fact that scleroderma occasionally yielded to thyroid extract supported the Wile idea that it might be due to disturbance of secretion.

DR. PUSEY had seen leukoderma and scleroderma together. He had never seen either a case of circumscribed scleroderma or a generalized case affected by thyroid extract.

SCLERODERMA WITH ATROPHY. Presented by DR. QUINN.

A woman, aged 63 years, stated that for the last six or seven years she had had a burning sensation of both forearms and legs and recently the feet had become stiff and were painful on going up or down stairs. On examination the skin showed atrophy on both upper and lower extremities with a brownish and purplish discoloration, the veins showng through the skin. Over the instep, there was a patch of hard, glossy, white skin with absence of elasticity, limiting the motion of the foot and interfering with locomotion. The treatment had consisted of the application of petrolatum ointment.

DISCUSSION

DR. ORMSBY said he was not sure about the case. He had tried to classify the condition as an idiopathic atrophy, the kind preceded by edema, but could not get such a history from the patient, and was not certain about the classification. He thought the lesion on the elbow had been like those on the scalp.

DR. WILE agreed with Dr. Ormsby with regard to the diagnosis of acrodermatitis chronica atrophicans, or as it might perhaps better be called, idiopathic atrophy.

DR. ZEISLER agreed with Dr. Wile.

DR. PUSEY believed the condition occurred as the result of various preceding causes. The essential change was that the skin had become very much thinned and transparent so that the blood vessels showed through. He had

more than once seen extreme cases of the disorder on the arms and legs. In many of the cases no definite pathologic process preceded it, but it might follow eczema, syphilis, inflammation or edema from various causes. There was also no question that it occurred spontaneously in old people. He recalled a patient whom he had seen first who had round, ulcerating lesions on the legs and dense infiltration of the skin; subsequently extreme atrophy of the skin of the legs developed.

DR. QUINN thought there was quite a good deal of hardness of both feet over the instep. At times the patient could hardly bend them in going up and down stairs. She had been using petrolatum, and this had made the legs more pliable. There were patches of hardening on the legs but not on the arms and fingers.

PITYRIASIS ROSEA. Presented by DR. ZEISLER.

A man, aged 22 years, presented an eruption which had been present for ten days. The eruption was confined principally to the trunk and upper part of the legs. There was an unusually large number of papular lesions in addition to the usual lesions of pityrasis rosea.

DISCUSSION

DR. LIEBERTHAL was of the opinion that it was a case of pityriasis rosea. He did not believe that the papular manifestation was a part of this disorder.

DR. PUSEY did not agree with Dr. Lieberthal's idea but thought that pityriasis rosea varied distinctly in the amount of infiltration present. The same process might bring about more edema and infiltration in one case than in another, and he did not think one could say with certainty that pityriasis rosea never had definitely papular lesions.

DR. WILE agreed with Dr. Pusey. He felt that pityriasis rosea appeared in two distinct forms, as small papules and as larger ovoid lesions, the latter being the more characterstic of the disease.

DR. ZEISLER said no treatment had been given in the case, and the eruption was of only ten days' duration. It seemed to him to represent an unusual papular type of pityriasis rosea, of which Dr. George Henry Fox had written some years ago.

DR. STILLIANS thought it was not uncommon to find papular lesions in early cases. He had recently seen a case with distinctly papular lesions, with the large mother patch on the abdomen, that was typical of the other variety. One sometimes saw lesions with a collar of scales.

DR. SENEAR thought this was an unusual type of case which varied from the original type with lesions of oval shape and cigaret-paper scale. He believed the point of view as to the necessity for a characteristic type of lesion was changing as more cases were seen, just as the old idea that the disease limited itself to the trunk, upper arms and thighs.

A CASE OF TUBERCULOSIS OF THE SKIN. Presented by DR. LIEBERTHAL.

A girl, aged 4 years, was presented to show the result of roentgen therapy. She was first presented to the Society about ten months previously with a tuberculous lesion of the cheek near the ear.[1]

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1. The case was described in the Transactoins of the Chicago Dermatological Society, Arch. Dermat. & Syph. **1**:476 (April) 1920.

DISCUSSION

DR. ZEISLER thought the result of the therapy was excellent.

DR. LIEBERTHAL said he always differentiated the cases in which he used this method of treatment.

PSORIASIS AND LUPUS ERYTHEMATOSIS. Presented by DR. LIEBERTHAL.

The patient was a woman, aged 24 years, whose lesions began on the face four years previously. They remained confined to the cheeks below the lower eyelids and to the sides of the upper part of the nose. Somewhat later red, scaly patches developed over the extensor surface of the elbows. None of the lesions yielded perceptibly to treatment.

DISCUSSION

DR. PUSEY was of the opinion that it was a lupus erythematosus and said he had recently seen a similar case.

DR. OLIVER thought it looked like a mild psoriasis on the arms, and the lesions on the face resembled lupus erythematosus.

DR. LIEBERTHAL thought it was lupus erythematosus on the face and psoriasis on the arms, although it was possible that it was the same process.

DR. STILLIANS stated that he had recently seen a case of lupus erythematosus on the face and seborrheic dermatitis on the scalp.

NEW YORK DERMATOLOGICAL SOCIETY

JAMES M. WINFIELD, M.D., *President*

Regular Meeting, Dec. 21, 1920

TUBERCULOSIS CUTIS ASSOCIATED WITH RECURRENT LYMPHANGITIS. Presented by DR. HOWARD FOX.

S. R., a man aged 37, born in Austria, a butcher, had nothing in his family or personal history to suggest tuberculosis. His parents and eight brothers and sisters were living and apparently well. He had been married fifteen years and had six healthy children. With the exception of "three attacks of erysipelas" occurring within one month, eight years ago, he had always been well and "never seen a doctor in his life." As a result of the attack of erysipelas the nose, upper lip and adjacent portion of the cheeks had remained slightly swollen and red. The present eruption appeared suddenly without any preceding trauma or other known cause two and a half years ago. The upper lip became decidedly red and swollen, and an open sore appeared on the left side of the lip below the nostril. The sore remained six or seven weeks and then extended to the right side of the lip, the entire lip remaining swollen and covered with crusts for three months. It then cleared up almost completely, leaving a "very thin scab" at the original site on the left side of the lip. One year ago the same process was repeated on the upper lip and within three or four weeks spread over the nose and adjacent parts of the cheeks. This condition lasted for several months, during which time the entire

area was covered with crusts. The original sore on the lip had been painful from the beginning, but especially so during the attacks, requiring hypodermic injections of morphin for its relief. Three weeks ago the lip lesion again (for the third time) began to enlarge and become red and painful.

The patient was an average sized man, well nourished, vigorous and intelligent. He presented a round, crusted patch the size of a dime on the left side of the upper lip. The crusts were firm and yellowish to blackish in color. The entire upper lip was somewhat swollen and red. The cheeks, especially the portions bordering on the nose, were also swollen and reddish, the border fading off into the healthy skin. The redness disappeared slowly on pressure and returned slowly. There were well marked, fairly deep scars of irregular shape on the lower portions of both alae of the nose. There were no lesions in the mouth. The teeth were in poor condition and many of them were missing. The urine showed nothing abnormal. Repeated Wassermann examinations had been negative. He had been seen by a large number of physicians, but no positive diagnosis had been made, and his condition had not been benefited.

DISCUSSION

DR. FORDYCE said the diagnosis was undoubtedly correct—tuberculosis of the lip with a secondary lymphangitis. He did not recall the case, although the man stated he had been under his care a year ago.

DR. HOWARD FOX said he would treat the case as an epithelioma by curetting, followed by massive roentgen-ray treatment, and would also make a biopsy.

SPONTANEOUS GANGRENE. Presented by DR. TRIMBLE for DR. BECKWITH.

A young woman, about 20 years of age, born in this country, exhibited on the inner side of the thumb of the left hand near the web between the thumb and index finger, a circumscribed ulcerated area. The lesion was comparatively deep and covered with a black eschar; at the time of presentation this was beginning to loosen at the edges, and apparently demarcation was taking place.

While playing baseball about the middle of August—which would make the duration a little over four months—a small blister was produced in this region from handling the bat. This bleb ruptured about two days later, and the patient was under the impression that she had smeared some ink from the typewriter ribbon into it. From that time the lesion began to turn black and to extend up to the dimensions that are observed at the present time. She had been treated in various ways and with many preparations without result. Pain was not a constant factor; at times it was severe, though most of the time the lesion was painless. Her past history brought out some interesting points. In October, 1917, she was operated on for appendicitis and the wound healed by primary union; about eight or nine months later the appendectomy wound began to turn black and finally broke down. It was several weeks before this finally healed. About two or three months later the same thing occurred and the wound finally healed in about one month. Before the appendectomy wound finally healed, she developed a slight infection of the great toe caused by a pin prick; this lesion was in the form of an abscess which opened spontaneously and showed the same appearance as the appendectomy wound. Although treated constantly, it was sluggish and did not heal for four months.

The patient had been examined in many ways; her Wassermann test was negative on three different occasions; her urine was normal; a therapeutic

test was negative; and she had been examined from a neurologic standpoint by Dr. Garretson with practically a negative result. Some opinions had been expressed that the case might be a dermatitis factitia, though this remained to be determined.

DISCUSSION

Dr. Highman said he had thought it a case of malingering when he saw the patient at the Vanderbilt Clinic, and was still of that opinion.

Dr. Williams believed it was a dermatitis factitia.

Dr. Fordyce said that he was not at all sure that the lesion was a self-induced one. It seemed to him more reasonable to assume an infection.

Dr. G. H. Fox discredited the factitious origin of the lesion, chiefly on account of the location. Factitious lesions are generally on some smooth surface, and he doubted whether any one would voluntarily produce a lesion which would interfere with the use of the hand.

Dr. Beckwith, by invitation, took issue with the diagnosis of malingering for several reasons. He had watched the case for many months, and was satisfied that the patient was desirous of having the condition heal. She had been anxious to get back to her work and was willing to try anything to get well. Not only that, but she had been examined by a competent neurologist, who had spent two hours in going over the case and found her neurologically, functionally and otherwise negative.

Dr. Trimble said that he could not believe it was a case of malingering; he could not imagine any one digging out a wound so deeply. Not only that, but the lesion displayed the characteristics of gangrene so plainly—there was the black eschar, the line of demarcation, etc.

LEPROSY. Presented by Dr. Fordyce.

Miss K., aged 42, a missionary in Jamaica for seventeen and a half years, had an uneventful past history except for a severe attack of malaria in 1907. She was under the impression that paroxysms occurred every day, the temperature rising to 105 F. In 1913 she had another attack, but it was milder. Following this she had a low grade fever, from 99 to 99.5 F., with headache every day for months. She came to the United States in February, 1914, and remained for nine months. During the first six months she had fever and headache every day and then intervals of freedom lasting about two weeks until the condition gradually subsided.

About twenty months ago the patient noticed an anesthetic, slightly erythematous patch on the outer surface of her right leg. This gradually extended until two months ago it was 2½ by 4½ inches in longest diameters. About eight months ago she again developed a temperature of 99 to 99.8 in the afternoon, lasting several days at a time, and appearing every week or every other week. The patient had shooting pains in the arms and legs occasionally, and attacks of numbness and tingling in the hands and feet. About three months ago on awakening one morning she found the palms and soles red and swollen. In ten days exfoliation in large flakes took place.

Since her residence in this country during the past eight weeks she has complained especially of the rise of temperature and headaches, a dull aching on the top of her head.

Physical examination was negative. Blood examinations for evidence of malaria and the Wassermann reaction were all negative. Tests of the urine were negative. Microscopic examination of the tissue showed rather deep seated granuloma. No bacilli were demonstrated.

The patient received six injections of chaulmoogra oil. Her headaches improved, and she thought her general condition had improved. The erythematous patch had increased somewhat in size.

DISCUSSION

Dr. H. G. Fox recalled a case of leprosy presenting a single patch on the leg like this one, and considering the anesthesia and the numbness of the hands there seemed no doubt about the correctness of the diagnosis.

Several of the members expressed agreement with the diagnosis.

LESION ON TONGUE. CASE FOR DIAGNOSIS, Presented by Dr. Williams.

A woman had been under observation for three weeks. She presented a lesion on the side of the tongue which had persisted for four months, but which had recently improved under treatment with simple mouth washes. The case was presented for an opinion as to whether the condition was anything more than a simple irritation.

DISCUSSION

Drs. Fordyce and Howard Fox thought the condition was a simple marginate glossitis of the tongue.

ERYTHEMA INDURATUM. Presented by Dr. Howard Fox.

E. E., a woman aged 54, born in Russia, had nothing in her family or personal history suggestive of tuberculosis. The patient was a large, stout woman, weighing 245 pounds, and except for the cutaneous lesions was in apparent perfect health. The eruption had first appeared about six or seven years ago. It consisted of constantly recurring subcutaneous, indolent, nodular lesions on both legs and lower third of the right thigh. They were somewhat more numerous on the anterior than on the posterior aspects of the legs. The lesions, which the patient said were more or less painful, appeared singly or two or three at a time and eventually ulcerated and cicatrized. They showed little or no tenderness, with the exception of one recent large bluish-red nodule.

DISCUSSION

Dr. Highman said that clinically the lesions looked like Bazin's disease, but he had never seen a case develop in such a healthy looking person of the age of this woman, and he could not reconcile this with the picture.

Several of the other men accepted the diagnosis.

Dr. Fordyce said that there seemed to be two types of the condition; the usual one being that seen in young women who are obliged sometimes to remain on their feet during the greater part of the day. The other type is found in older persons and is probably not tuberculous but an inflammatory reaction about the deep veins of the leg from some unknown cause.

HODGKIN'S DISEASE, WITH CUTANEOUS ERUPTION. Presented by Dr. Wise for Dr. Fordyce.

M. G., a married woman aged 29, had an eruption which had troubled her for two and a half years. The case had already been shown before another society, as a papular pruritic eruption in a woman with Hodgkin's disease.

DISCUSSION

Dr. Trimble said that he felt as did Dr. Wise, that the condition consisted of prurigo-like nodules associated with Hodgkin's disease. He had seen another case very much like this one, and agreed with the diagnosis.

Dr. Highman said that the case had been presented before the Academy Section, and a question had been raised as to the nature of the condition. It seemed to him to be the condition which Hebra used to called prurigo lymphatica.

Dr. Howard Fox thought it was a nonspecific type of eruption that would show histologically merely inflammatory changes and not those characteristic of Hodgkin's disease. In answer to a remark of Dr. Fordyce, Dr. Fox said that Bowen had examined such a case and found simply inflammatory changes.

Dr. Fordyce said that it was a condition that is seen in Hodgkin's disease, though he did not know whether or not the lesions were essentially similar to those found in other tissues of Hodgkin's disease.

ERYTHEMA MULTIFORME PERSTANS. Presented by Dr. Schwartz.

Mrs. K., aged 46, married, about four years ago when she was in her seventh month of pregnancy, noticed an eruption on her extremities and on the mucous membrane of the mouth. The patient stated that she was never free from the eruption during this entire period. With the eruption, there was occasionally a mild chill, very often joint pains and swelling of the legs.

The patient was first seen about four months ago after having spent about four months in Mount Sinai Hospital. She noticed no improvement during her stay there. She presented an eruption of maculopapular and bullous lesions, some of which were similar to those of erythema multiforme with the color scheme of erythema iris, but most of the lesions were hemorrhagic; even the bullae were occasionally blood stained. The latter appeared on the normal skin without the presence of an inflammatory zone about it. The lesions in the mouth were always bullous and more often hemorrhagic than not. There had never been a real intermission, as a new crop would appear before the old one had entirely faded. Pains in the joints at night was the usual indication of a new eruption. Occasionally periosteal swellings were observed.

Her mouth was examined with the roentgen ray and a pus focus in a tooth was removed, but the condition remained unchanged. Her heart, lungs, urine, blood and feces were normal. She presented evidence of pituitary and ovarian deficiency, but treatment for this condition has not influenced the skin lesions. She showed a multiple protein sensitization, but gave an especially distinct reaction with *Staphylococcus aureus* and *Streptococcus hemolyticus*.

DISCUSSION

Dr. Wise agreed with the diagnosis. He had observed the patient at Mount Sinai Hospital, where the lesions were practically the same as now presented. It was the only feasible diagnosis.

Dr. Trimble agreed with the diagnosis as presented, but said that sometimes these conditions transferred themselves into pemphigus. The presence of bullae in the mouth made that seem probable.

Dr. Highman said he had watched the patient for four or five months, and it was erythema of any kind one could think of—erythema nodosum, bullosum, hemorrhagicum, or any combination of these with or without mucous lesions. She practically never had remissions. The attacks were nearly always accompanied by arthralgia. All of the investigations were negative. She was given transfusions once, and there was an almost total remission; but just as the condition seemed solved a relapse took place. Today the condition justified the diagnosis under which it was presented, but in a week or two the picture would probably be changed entirely. It was a most baffling case.

PAGET'S DISEASE OF THE NIPPLE. Presented by Dr. Wise for Dr. Fordyce.

Rachel L., 57 years old, an Austrian woman, married and thirty-two years in this country, was referred to the Vanderbilt Clinic by Dr. Thornley. The first sign noticed by the patient was bleeding from the left nipple. There gradually developed an erosion, and a violaceous parchment-like infiltrated patch extending slightly beyond the areola of the left breast. There were no discharge, no masses and no glands present.

DISCUSSION

Dr. Fordyce said the most interesting question in connection with these cases was the proper treatment to be employed. Should one in minor forms of Paget's disease advise partial or total excision of the breast, or should the roentgen ray be employed in cases in which there was no manifestation or involvement of the breast? Surgeons invariably recommended breast excision. It seemed to him, however, that a major operation in early cases of Paget's disease might be deferred until the roentgen ray had been given a trial. He referred to a case reported by Dr. Wiggin and himself a number of years ago in which the involvement of the mammary tissue was not detected until the breast had been excised and a thorough examination made. In this case a deep-seated involvement of the glandular structure was detected, which had broken through the basement membrane and presented the typical appearance of carcinoma.

Dr. G. H. Fox said he had known similar cases apparently cured by caustic applications; but whether there had been a recurrence in later years he was unable to say.

DUHRING'S DISEASE (?) PAPULAR TYPE. Presented by Dr. Wise for Dr. Fordyce.

Helen H., aged 16, American, doing housework, presented herself at the Vanderbilt Clinic with an eruption on the shoulders, hips, buttocks, anterior surface of thighs, and on the scalp and chin. The lesions were the size of a split pea, excoriated here and there, with pigmentations in some places. There were no vesicular lesions. The patient suffered from severe itching. The duration of her skin trouble was two months.

DISCUSSION

DR. WILLIAMS said that he had found one lesion on the outer surface of the arm that was vesicular, although he had understood Dr. Wise to say that they were all papular.

MULTIPLE PIGMENTED SARCOMA (KAPOSI). Presented by DR. HOWARD FOX.

J. R. was an Austrian Jew, 56 years of age, a paper-box maker by trade. The eruption was first noticed about five years ago, on the thighs, shortly after on the tip of the nose, and later on the feet and other portions of the body. The lesions consisted of violaceous, nonscaling infiltrations slightly raised above the surrounding normal skin. The case had been previously reported in full by Dr. Fred Wise (Med. Rec., 1915). He had been treated with the roentgen ray without much improvement, except in the lesion on the nose, which had entirely disappeared. Subsequent to this report, the eruption had increased considerably in extent on the feet, forming large, infiltrated areas on the dorsal and lateral surfaces, and the soles. A small bean-sized tumor had appeared recently on the dorsum of the left foot and had been excised for microscopic study. A histologic diagnosis of Kaposi's sarcoma was made by Dr. Highman. The patient was again being treated with roentgen ray.

DISCUSSION

DR. WISE said that the patient had been at the Vanderbilt Clinic a year or two ago. Dr. Fox had stated that the condition did not respond to treatment, but at that time it had responded readily. The case was probably running the usual course of not responding to treatment, but when the patient was at the Vanderbilt Clinic the lesion on the nose disappeared under roentgen-ray treatment, filtered.

DR. HOWARD FOX said that he had accepted the patient's statement that he had received roentgen-ray treatment without much benefit. He was now receiving roentgen-ray treatment with as yet little improvement.

PSORIASIS.—Presented by DR. WILLIAMS.

Arnold I., 46 years of age, first a salesman then a driver, had been referred for treatment from Newark, with no history of exposure to any irritants. The lesions began five years ago at the anus and extended to the genitals, and then appeared on the hands about four or five years ago. The lesions presented red, thick, sharply outlined areas, with cracks and dry white scales; there were no vesicles, no erosion, and no healing in center.

The patient had suffered a nervous breakdown while attending a law school. One brother had had syphilis and died insane. The patient was excitable and easily aroused by reference to syphilis. He had had nine exposures to the roentgen-rays, ¼ unit each, at weekly intervals for the past twelve weeks. The hands were better during the treatment; but when this had been omitted for two weeks the condition of the hands relapsed. The chief interest in the case lies in the arrangement of the lesions on the inner surface of the thigh, which imitates the distribution of tinea cruris.

DR. G. H. FOX said he hoped Dr. Williams would keep in touch with the case and show the patient again a year or so later.

DERMATITIS EXFOLIATIVA? MYCOSIS FUNGOIDES? Presented by Dr. Wise for Dr. Fordyce.

Reuben C., 49 years of age, a Russian, who had been in this country for thirty years, a tailor, presented himself at the Vanderbilt Clinic with an eruption of five months' duration. On the face and neck were violaceous, slightly raised and edematous plaque-like lesions covered with thin scales. The nose and eyelids showed the presence of an acute dermatitis, i. e., there was an erythema and some edema, with mild scaling. There was a diffuse pigmentation of the trunk and a small papular dermatitis of the elbows with a folliculitis in the groins. The skin of the entire body was implicated in the process.

DISCUSSION

Dr. Williams said that he had seen the case last spring at the Skin and Cancer Hospital; at that time the exfoliation was extreme, and the patient was filling the bed every day with fine branlike scales.

Dr. Fordyce said that chronicity was the feature that seemed to characterize these cases—some going on to mycosis fungoides and others to atrophy of the skin, resulting in the death of the patient; other patients recovered. Darier gives a better description of these cases than any of the modern books.

Dr. Highman said he had watched the case last summer at Mount Sinai Hospital, and had examined a slide which was highly suggestive of mycosis fungoides. The patient remained fairly well. On the strength of a German article written in 1916, on the treatment of parapsoriasis, he was given pilocarpin, 0.1 grain a day, because the early lesions resembled parapsoriasis. Under this treatment the lesions cleared up temporarily without any local application, excepting the application of petrolatum. It seemed to be an atypical case of mycosis fungoides.

Dr. Wise said that the case was of interest, for, as Dr. Highman had said, it *seemed* to be mycosis fungoides; but he himself had never been able to persuade himself to call such a case as this by that name. It might later become so, but at the present time he could not admit that to be the proper diagnosis. Dr. Highman himself had said that the histology was only suggestive. The speaker believed the condition belonged to the pityriasis rubra of the Hebra group of diseases, or that it was a chronic dermatitis exfoliativa, in this instance associated with a few raised plaques.

Dr. Highman said that when the patient was seen last summer the lesions were more granulomatous, and that not all mycoses run true to type; but this case seemed to belong to the group of lymphatic infiltrations of the skin.

Dr. H. G. Fox asked whether it was not unusual for mycosis to affect the whole skin at once.

Dr. Wise said that that was what he thought.

MYCOSIS FUNGOIDES. Presented by Dr. Wise for Dr. Fordyce.

William K., 47 years of age, American, single, a contractor, presented himself at the Vanderbilt Clinic with a skin eruption of four months' duration. The trunk, arms and thighs were involved. The patches were pale red, pea-sized to olive-sized, those on the chest being irregular in shape, some linear and some geographic, and almost palm-sized. Infiltration, sharp borders with fine scales over the entire lesion, was present. The scalp was free. There was a furunculosis of the neck.

Dr. Fordyce said that he had not seen the case before that afternoon, but it impressed him as a premycosic erythroderma.

Dr. Trimble said that later on the man might develop mycosis fungoides, but as presented he could not agree absolutely with that diagnosis. Observing this case at a distance of ten feet it resembled parapsoriasis. The main point against the diagnosis of mycosis fungoides was that the patient stated the eruption did not itch severely. Taking into consideration another thing, the short duration and the scaling around the ears, it might be a case of generalized seborrheic eczema, and might get well under appropriate treatment. The clinical picture resembled a parapsoriasis in patches, although it had some resemblance also to seborrheic eczema.

Dr. G. H. Fox thought it might turn out to be mycosis fungoides later, but at present the patches seemed too bright in hue. In all the cases he had seen in the discoid form the skin had a dull color and was more scaly than this. He had thought it might be a case of parapsoriasis, but doubted the diagnosis of mycosis fungoides.

Dr. Wise strongly favored the diagnosis of mycosis fungoides.

BROMODERMA. Presented by Dr. Wise for Dr. Fordyce.

Yetta S., 10 years old, born in this country, presented herself at the Vanderbilt Clinic with erythematopustular lesions on the arms and legs. Some of these lesions were raised and granulomatous in nature. Some pigmented spots and scars showed remains of former lesions. She had been suffering from convulsive seizures for the past three years for which she was taking bromids.

ERYTHEMA MULTIFORME BULLOSUM? (CASE FOR DIAGNOSIS.)
Presented by Dr. Williams.

J. W., a man, aged 83, retired, was first seen in May, 1920. The family history was negative. Previous history was negative for any skin eruption, tuberculosis or syphilis. The physical examination was negative. His general health was good. His present trouble began in January, 1920, with an itching eruption on his neck, hands and arms, later extending to the body. This was not treated. When first seen in May, the hands were swollen and red and presented many vesicles and bullae. At that time no bullae arising from normal skin were noticed, although they were looked for. The congestion and inflammation were the prominent features. The eruption subsided under soothing applications locally, and arsenic internally, but the itching persisted, and the hands were always cold. In November potassium iodid was given in doses up to 20 grains a day; following this treatment a new crop of bullae appeared. The Wassermann reaction was negative. The white cell count showed only a transient eosinophilia.

The case was presented for diagnosis. It had many features resembling pemphigus, and Dr. Williams believed this will be the ultimate diagnosis.

DISCUSSION

Dr. G. H. Fox said that if he were looking for a case of typical erythema bullosum to photograph he would select this one.

FOR DIAGNOSIS: TUBERCULOSIS CUTIS OR LEPROSY (?). Presented by Dr. Howard Fox.

The patient was a young man born in the West Indies, referred by the U. S. Public Health Service. He presented an eruption of most unusual appearance on the forehead and nose. It had first appeared eighteen months ago, gradually increasing in extent. He had been exposed to mustard gas while in the military service, though there had been no burns on the face. Neither the family nor previous history threw any light on the diagnosis, except the fact that he had lived in the West Indies fifteen years previously, which suggested the possibility of leprosy. He complained of no subjective symptoms.

The eruption consisted of firm, more or less elevated nodules, some of them dull reddish, others of a lean ham color. They were smooth and devoid of any evidence of scratching. They were irregular in size and shape, some round or oval, others being more or less linear with a partial circinate tendency. There was no change in sensation of touch or pain. There was also a slight scaling condition of the palms and soles.

DISCUSSION

Dr. Williams said that he had thought it was lepra. There was a distinct thickening of the ulnar nerve.

Dr. Schwartz agreed with the diagnosis of lepra.

Dr. Kingsbury thought it suggestive of lepra, more especially on account of the infiltration of the ulnar nerve, and the fact that the man came originally from Jamaica.

Dr. Highman agreed with the diagnosis of lepra on account of the infiltration which was characteristic.

Dr. Fordyce remarked that the man had a hard and scaly condition on the palm also, not infrequently seen in leprosy.

Dr. Howard Fox said that four possibilities had been considered, namely, syphilis, tuberculosis, lepra and mycosis fungoides. He thought syphilis could be excluded as the nodules were rather symmetrically situated and did not show any distinct circinate grouping. The absence of itching and the history spoke against mycosis fungoides. The absence of any abnormality in cutaneous sensation was against the diagnosis of lepra, though his former residence in the West Indies favored this diagnosis. The possibility of an atypical cutaneous tuberculosis was suggested. The patient had been seen only once a few days previously. No pathologic examination had as yet been made.

LICHEN PLANUS. Presented by Dr. Fordyce.

The patient was a young man who presented an extensive eruption over his arms and trunk. Over the trunk the grouped and isolated lesions showed the typical appearance of an acute lichen planus. On the forearms, backs of the hands and fingers the lesions were distinctly follicular and closely resembled those encountered in pityriasis rubra pilaris. The young man's occupation brought him in contact with paraffin oil. It seemed highly probable that the appearance presented by the lesions on the upper extremities was due to the irritating influence of the oil, causing them to assume the appearance in question. The case was presented as a possible combination of lichen and pityriasis rubra pilaris.

DISCUSSION

Dr. Howard Fox thought it an atypical case of lichen planus.

Dr. Fordyce said it was probable that the man's occupation has modified the lesions on his hands and forearms. He worked for an electric company and was constantly in contact with heavy paraffin oil.

Dr. G. H. Fox, referring to the possible association of lichen planus and pityriasis rubra pilaris, said he believed they were entirely distinct, and he had never seen a patient in which the two were combined. For many years he had claimed that one could not find flattened papules in lichen rubra; but finally in a case (see picture in Morrow's book) a few flattened papules were present with numerous acuminate ones, and he had therefore taken back his statement that they did not occur together.

NEW YORK ACADEMY OF MEDICINE, SECTION ON DERMATOLOGY AND SYPHILIS

Regular Meeting, Jan. 4, 1921

Howard Fox, M.D., *Chairman*

PAGET'S DISEASE OF THE NIPPLE. Presented by Dr. Williams.

Mrs. A. W., aged 45 years, was born in the United States and had always lived here. About three years ago she noticed a little blood under the skin over the right areola of the breast. The blood oozed out and has flowed intermittently with admixture of pus ever since. She presented a round lesion on the right breast about an inch in diameter, with a fairly sharp marginated border and erythematous eroded surface. The nipple was entirely retracted. There was no adenopathy of the axillae and only a slight infiltration of the skin lesion. There were no definite nodules in the breast. The patient had nursed both her children; the youngest one was about 19 years old. She still menstruated.

DISCUSSION

Dr. Pollitzer said there was no question about the diagnosis or about the treatment—operation at the earliest possible moment.

Dr. Lane agreed with Dr. Pollitzer that there was no question about the diagnosis, and that the patient should be operated on at the earliest possible moment.

FOR DIAGNOSIS. Presented by Dr. Williams.

Twelve years ago, the entire right foot of Miss L. B., 38 years old, became swollen. Three weeks later the foot was frozen; three years later it was frozen again; a few weeks later a corn developed, and one year later an abscess developed which was cauterized. She wore a special shoe for five years. A blister appeared five years ago. The foot would become ulcerated in winter but would be well in summer. One year it became ulcerated, as it is at present, and has remained so ever since.

The great toe of the right foot was much larger than normal in all its measurements. The interphalangeal joint was raised in a hammer toe effect and had a persistent discharging sinus at its apex. There was little evidence of acute inflammation. The Wassermann reaction was negative.

DISCUSSION

DR. GILMOUR expressed the opinion that it was a surgical case and thought that with a smaller probe one would find dead bone. The roentgen-ray picture, however, might help to clear up the diagnosis.

DR. LANE said that with negative roentgen-ray findings the appearance and description of the case made it seem probable that there was a diseased bursa. Surgical exploration was indicated.

DR. HIGHMAN said that this group of cases was most interesting and important, and he was inclined to agree with Dr. Williams' surmise that it was probably a chronic ulcerative condition in a foot already subject to pernio. He had himself had two similar cases recently, one of the patients being a man with a somewhat similar callous lesion on the index finger. The man gave a negative Wassermann reaction, but became well under specific treatment. The second case was identical, with a negative Wassermann reaction, and the lesion healed under specific treatment. Dr. Williams should attempt the same treatment for diagnostic purposes.

DR. POLLITZER said that the case seemed to show the effects of repeated traumatism. The toes seemed to have been frozen seriously once, and to have been frozen once or twice after that, and such conditions occur in frozen members. Whether there was also an intercurrent infection of tuberculosis was worth considering. At any rate, the swelling and continued ulceration were the natural effects of the cold on the tissues—the tremendous endarteritic changes were enough to account for conditions presented in this case.

PEMPHIGUS VULGARIS OR URTICARIA BULLOSA? Presented by DR. BECHET.

J. F., a boy, aged 7 years, from Dr. Trimble's service at the University and Bellevue Clinic, had had the eruption for two months. He had been observed only once previous to presentation. At that time there were distinct bullae on the thighs which apparently arose from a healthy skin; the bases were noninflammatory. There were a large number of pigmented, involuting, ringlike lesions marking the sites of previous bullae. No wheals could be discerned. The lesions were mostly confined to the trunk and thighs; there was no grouping. The boy's general health was good, and his family history was negative. When seen on the day of presentation no new bullae had developed.

DISCUSSION

DR. WILLIAMS said that it was a most interesting case and as presented the diagnosis was difficult to determine. The patient seemed to be a healthy boy with no evidence of constitutional disease, and he rather inclined to the diagnosis of erythema bullosum than to pemphigus.

DR. ABRAMOWITZ said that it might be pemphigus or erythema bullosum; but the child had been given physics quite often and had been taking Ex Lax which contains phenolphthalein, so it might be well for Dr. Bechet to investigate along this line and to find out whether the eruption might not be due to some medicine that he had been taking.

DR. PAROUNAGIAN was inclined to accept the diagnosis of erythema bullosum.

DR. TRIMBLE said he had seen the patient in the ward at Bellevue Hospital for the first time, and could add nothing to what had been said. It looked very much like a case of pemphigus. The only constitutional symptom was temperature; the patient's temperature varied between 99 and 101 F. for a week or ten days. When the temperature became normal the patient was dismissed from the hospital, though he had any number of bullae coming up on the skin without areola. Dr. Trimble had the impression that it must be a case of erythema bullosum, but had the condition occurred in an adult with the constitutional symptoms, the diagnosis would certainly have been pemphigus.

DR. ROTHWELL said that he had seen the patient in Bellevue before Dr. Trimble saw him. There were on the child's body and legs probably a hundred blebs, many of them rising from the normal skin. Some of them had an areola, but that might have been caused by infection. In his opinion it was a case of pemphigus vulgaris. It is well known that these crops of bullae can appear and disappear over and over again.

DR. BECHET said that a point against the diagnosis of erythema bullosa was the fact that there were few if any lesions on the arms and no sign of a papule. At no time had there been any wheals or any eruption resembling them. The bullae apparently arose from normal skin.

DR. PISKO said he was under the impression that the area in which the one single bulla was seen when the patient was presented was noninflammatory, and this would lead to the diagnosis of pemphigus. He had seen a number of cases of juvenile pemphigus, and was inclined to accept that diagnosis in this instance.

ERYTHEMA NODOSUM. Presented by DR. LEVIN.

An Austrian woman, aged 51, married, complained of a painful eruption of swellings. The first lesions were observed on the legs and arms; five days previous to presentation they appeared on the legs. The lesions had developed rapidly and new ones were appearing. She also complained of general malaise, pains and headache.

Several acutely inflamed nodes, varying in size from that of a bean to that of a golf ball, were present on the tibial aspect of both legs. They were bright red in color, round, situated deeply in the skin, hard and very tender. The redness of the skin was not sharply limited, but faded gradually into the surrounding normal skin. The largest nodes were grouped just below the inner aspect of the left knee. Similar smaller nodes were present on the outer surface of the arms.

There was no family or past history of rheumatism, syphilis or tuberculosis. The patient was married; her husband was alive and well; she had been pregnant four times, two pregnancies terminating in miscarriages as a result of hard work, and two terminating in the birth of healthy children, one of whom died from an accident.

CHARCOT'S KNEE. Presented by DR. LEVIN.

R. B., a married woman, aged 44 years, was first treated at the Beth Israel Clinic in December, 1919. Her complaint was a much swollen, moderately painful, left knee of nine months' duration.

She denied tuberculosis or syphilis by name or symptom. Her husband had died from pneumonia. Six miscarriages were followed by the birth of a healthy child. A pelvic operation was performed three years ago. An exploratory operation was performed on the left knee just after the onset of the swelling and pain.

Physical examination revealed that the patient was a short, fairly well nourished female adult. The abnormal findings were: contracted pupils which reacted sluggishly to light, a positive Romberg sign and absent knee jerks. The left knee was about twice its normal size, showed abnormal motility (flail), and the skin over it showed a scar from an old incision. She walked with a limp and complained of occasional lightning pains down the left leg.

A radiograph of the left knee showed new bone production on the lower part of the femur and on the heads of the tibia and fibula; destruction of the articular surface and outer portion of the inner head of the tibia; the tibia and fibula displaced outward; marked cartilage absorption, and thickening of the capsule with numerous bone islands in its posterior and inner portions. The patella showed spur formations.

The Wassermann test at first was $++++$; it now has been negative for four months.

She has received fifteen arsphenamin and twenty-five mercury injections.

NEVUS ANEMICUS. Presented by DR. ROTHWELL.

The patient, from the University and Bellevue Hospital Medical College Clinic, service of Dr. Trimble, a white man, Russian by birth, 42 years old, presented a splash of leukodermatous skin over the left pectoral region, most irregular in outline, which on irritation of the skin of this region failed to participate as fully in the congestion resulting from this irritation, while the same irritation applied elsewhere produced uniform diffuse redness. The texture of the patch seemed similar to that of the neighboring normally pigmented skin.

The patient did not know how long the lesion had been present, but said it had been present as long as he could remember. He visited the clinic for treatment of an alopecia areata of the beard and a tinea versicolor, and it was in examination of the chromophytosis that the nevus was observed.

DERMATITIS EXFOLIATIVA FOLLOWING PSORIASIS WITH PECULIAR NODULES ON THE THIGHS AND LEGS. Presented by DR. TRIMBLE.

A young girl, 18 years old, had suffered from psoriasis for four years. The disease quickly spread over the whole body until it finally became practically universal. About one year ago she noticed a number of large nodules on the legs and back of the thighs, and these have continued to increase in size and number since that time. They were about the size of a hazelnut, some larger, and were rather firm in consistency. The case was mainly shown for this latter symptom.

Histopathology: There was lengthening of the papillae and corresponding lengthening of the pegs. The papillary layer showed congestion and some round cell exudation around the vessels. There were: absence of the stratum granulosum, some parakeratosis in areas near the hair follicles, and a moderate grade of hyperkeratosis.

DERMATITIS EXFOLIATIVA, FOLLOWING PSORIASIS. ARSENICAL KERATOSES. Presented by DR. HOWARD FOX.

A young man, referred by the U. S. Public Health Service, had suffered from psoriasis for the past five years, and had been treated by chrysarobin and arsenic. For nearly three and a half years continuously he had taken Fowler's solution. For the past two months he had suffered from a universal exfoliative dermatitis, with profuse scaling and intense itching. He also presented numerous pinhead sized keratoses of the palms and of the palmar surfaces of the fingers and soles. The patient was a robust, intelligent man of medium size.

DISCUSSION

DR. WILLIAMS said that the case presented by Dr. Fox was a typical one. Dr. Trimble's case was interesting on account of the nodules. As presented, the exfoliation had passed off, the skin was dry, and the lines of the skin were increased. The skin had evidently itched and had been scratched, and presented the condition frequently seen in old persons but rarely in the young. The girl stated that she had scratched all the time. The nodules were, he believed, the result of repeated scratching, a condition which had occurred in several patients presented by him before this society (*Jour. Cutan. Dis.* 1914, p. 460, and *Arch. Dermat. & Syph.* **3**:84, 1921).

DR. HIGHMAN said the condition in Dr. Trimble's case seemed to him to be a lichen hypertrophicus, with chrysarobin dermatitis.

DR. POLLITZER said that the nodular lesions in Dr. Trimble's case suggested lichen hypertrophicus. There was another condition not covered by this diagnosis—a considerable infiltration of all the skin, particularly noticeable on the elbow bends. It was a little unfortunate that one had to depend for the history on the statements of the patient. Dr. Trimble had not seen the case until recently, and gathered from the patient the history of the psoriasis developing afterward into nodules, etc. The case as presented seemed rather to be a case of lichen hypertrophicus on a skin which had been the site of some other extensive generalized dermatitis with itching.

DR. GILMOUR said he had been wondering whether the patient had not been taking arsenic, which might have had some influence on the pigmentaton.

LESION ON THE BUTTOCK, FOR DIAGNOSIS. Presented by DR. WILLIAMS.

Miss E. G., 11 years old, was presented with the remains of a herpes simplex on the right buttock. The case is interesting mainly because of the history. The mother stated that lesions similar to the present had appeared each year since the girl was 1 year old, and always at, or about, the same time of the year. She had been under observation at the Skin and Cancer Hospital since the winter of 1916, and the statements could be confirmed for four years. This year the appearance of the eruption had been observed from a red, elevated patch—the formation of the vesicles, the involution of the erythema and drying of the vesicles. The treatment had been boric acid ointment used externally. No internal medication had been given. No other cutaneous lesions were present.

ALEPPO BOIL. Presented by Dr. Parounagian.

Mrs. P. V., aged 16, an Armenian, a private patient, arrived in the United States on Aug. 8, 1920. The condition had been present since April, 1920. The lesion was the size of a dime; it was situated on the lower lip, near the left angle of the mouth. The lesion was elevated, purplish-red in color and slghtly crusted. Examination of the body revealed no syphilitic manifestations. The patient refused laboratory examinations. She was exiled during the war and spent some time in Aleppo and around those regions.

DISCUSSION

Dr. Pollitzer said he thought some one ought to express an opinion that the diagnosis seemed probable, but that was as far as he was willing to go. Positive proof could be had only by microscopic examination, and even that might be negative as the condition had been present for some time and was now beginning to involute; but a probable diagnosis could be made by exclusion. It was difficult to say what other condition it might be—a granulomatous lesion on the lip which had existed now for nearly six months on a patient coming from the Aleppo-boil region. It seemed extremely probable that the diagnosis as presented was correct.

Dr. Howard Fox did not feel that the clinical appearance in this case warranted a positive diagnosis of Aleppo-boil. There was one large, hard gland in anatomic relation with the lesion, which did not correspond with the picture of this disease, in which adenopathy was noticeably absent. As had been said at a previous meeting, in many cases it was only possible to make a positive diagnosis by finding the characteristic organisms in smears or sections.

SYPHILIS, SARCOID, LUPUS ERYTHEMATOSUS? Presented by Dr. Fraser.

Mrs. F., aged 42, married, from Dr. Trimble's clinic, whose previous and family history were negative, presented lesions which were slightly elevated, nonscaly, reddish nodules from 3 to 5 mm. in diameter, situated on the left side of the nose near the inner canthus, developed from what the patient described as red spots which she first noticed about four months ago. The Wassermann reaction was negative.

Histopathology: The eruption consisted of flattened papillae—collections of cells around, in, and replacing, hair follicles and sebaceous glands. The central portion of these collections consisted of a network of large light staining epithelioid cells with elongated and frequently indented nuclei, together with a sprinkling of small round cells with deeply staining nuclei. In the peripheral portions these small deeply staining nuclei predominated. There were no giant cells. Some vessels showed a few of these epithelioid and round cells in the adventitial sheath but no proliferative changes in the intima. A few nerves showed degeneration and fibrosis. The lower part of the epiderm and of the corium were edematous.

DISCUSSION

Dr. Fraser said that the diagnosis of syphilis could be excluded by the anatomic picture, the negative Wassermann reaction, and the failure of the condition to respond to antisyphilitic treatment. Clinically and histologically

the picture fitted better with the diagnosis of Boeck's multiple benign sarcoid than with any other condition, and he was inclined to accept that diagnosis.

DR. HIGHMAN agreed with Dr. Fox that Dr. Fraser, by his thorough study of the case, had deprived the members of a lively discussion which they might otherwise have had.

CASE FOR DIAGNOSIS. (MORPHEA-LIKE EPITHELIOMA?) Presented by DR. TRIMBLE.

A woman, aged 33 years, first noticed a lesion on the left ala of the nose seventeen years previously. She stated that she had noticed a slight increase in size for the last five years. For the last three months there had been an inflammatory change near the periphery of the original lesion. She presented fo rexamination a small ivory white indurated plaque about one-third inch in diameter; near its edge was a small pinhead sized depressed inflammation point without border.

DISCUSSION

DR. BECHET said that he had noted a somewhat similar case in private practice. The patient had a small spot of morphea on the nose which several years later underwent epitheliomatous degeneration. In Dr. Trimble's case the small spot markedly resembled morphea. There was also a distinct ulcerating area, the size of a small pinhead, near its edge. It seemed plausible to consider it primarily a morphea, with slight superimposed epitheliomatous degeneration.

LUPUS VULGARIS OF SERPIGINOUS TYPE. Presented by DR. HOWARD FOX.

A. G., a full-blooded negress, 27 years of age, single, born in Porto Rico, a seamstress, had nothing in her family or personal history to suggest tuberculosis. The patient stated that she had been in good health until three years ago, when the eruption suddenly appeared on the face. It began on the nose, following an insect bite and, according to her statement, attained its maximum development in a month. She claimed that the spread of the disease followed the application of some salve. She was later treated with the roentgen ray by a Porto Rican physician for three months with no resulting benefit. The eruption occupied the central portion of the face, including the lower half of the forehead, the entire nose and anterior portions of the cheeks and portions of the lips. It consisted of a large solid sheet of lesions that had apparently spread in a serpiginous manner from the central part of the face. The borders were sharply demarcated, raised, firm and scaling. The color was brownish-blue, the patient being a full-blooded negress. Scattered over the infiltrated region were a few small pustules. There was no ulceration. There was no evidence of scratching, and she complained of no subjective symptoms. On the upper lip were areas of scarring, of normal color in places, in others somewhat depigmented. The scars were fairly soft and pliable. There was a noticeable absence of the tip of the nose, the patient presenting a characteristic picture of lupus vulgaris in this respect. There were numerous small hard, painless, enlarged glands in the submaxillary region, and the left preauricular gland was much enlarged and indurated. The patient was a woman of medium size and fairly well nourished.

RINGWORM ASSOCIATED WITH ADENOMA SEBACEUM. Presented by Dr. Gilmour.

H. L., a boy, aged 12, white, single, born in the United States, was an idiot and also suffered from malnutrition. May 2, 1919, the patient was admitted to the hospital, and at that time adenoma sebaceum was present. This condition had been present for a few years—the length of time was undetermined. Aug. 3, 1920, ringworm of the scalp developed. Both diseases were typical.

PEMPHIGUS (?) OF THE MOUTH. Presented by Dr. Bechet.

A woman, aged 53, from Dr. Trimble's service, stated that eight months previously she began to notice blisters in her mouth. Her teeth were removed in the hope that improvement in her condition would follow, but without success, for the lesions continued to appear, retrogress, and disappear, after which new ones would develop in a short time. She had therefore had frequent recurrences of small bullous outbreaks on the mucous membrane of the mouth. At one time two distinct bullae were noted. She stated that these bullous outbreaks interfered with deglutition, and that in consequence her nutrition had suffered and she felt weak. At no time had she noticed any evidence of a vesicular or bullous outbreak on the skin. Local treatment by her throat specialist had proved of no avail.

DISCUSSION

Dr. Abramowitz said that he had seen the patient some time before at the Vanderbilt Clinic, and they had considered pemphigus but favored the diagnosis of aphthous stomatitis. He had seen several such cases clear up under chlorate of potash mouth wash and a 2 per cent. chromic acid solution applied locally.

Dr. Lane agreed with Dr. Abramowitz, and expressed the opinion that the case was probably a chronic relapsing aphthous stomatitis.

LUPUS ERYTHEMATOSUS. Presented by Dr. Gilmour.

C. V., aged 27 years, a Porto Rican negro, an embroidery worker, married, had a lesion on the nose of two months' duration. There were no symptoms. The lesion started as a small spot, and now occupied the lower half inch of the center of the nose. The lesion was slightly raised, lighter colored than the surrounding skin, and was covered with a fine scaling.

LUPUS ERYTHEMATOSUS. Presented by Dr. Rothwell.

The patient, from Dr. Trimble's Clinic, a white woman, 32 years old, presented on the tip of the nose over an area about the size of a dime, a condition of piled-up scaliness, almost verrucous in character, the scales being too adherent for removal without great discomfort. The lesion had been present one year, and the patient described the scale formation, which she had been able to remove after application of some salve prescribed by a physician, as showing slender projections from the under side. No application prescribed at the clinic to date had affected such softening or loosening as permitted such removal. There was no history of known tuberculosis in her family.

DISCUSSION OF CASES OF DRS. GILMOUR AND ROTHWELL

Dr. Trimble said he had on several occasions seen the case presented by Dr. Rothwell, and thought it was an atypical type of lupus erythematosus. The crusting could not be removed, but it was not due to any such medication as lotio alba. The hyperkeratosis was due entirely to the disease.

Dr. Levin agreed with the diagnosis of lupus erythematosus in both cases. He also stated that Dr. Gilmour's patient showed patches of lupus erythematosus on the dorsa of the fingers.

Dr. Oulmann agreed with the diagnosis of Dr. Gilmour's case, but not with the diagnosis of Dr. Rothwell's case, in which warty excrescences developed from a small circumscribed lesion. If this lesion were on the hand, he would consider porokeratosis. The lesion should be examined microscopically.

Dr. Highman expressed the opinion that the case presented by Dr. Rothwell was one of lupus erythematosus; and that the one presented by Dr. Gilmour was either lupus erythematosus of the nose and fingers, or lupus erythematosus of the nose with pernios on the fingers—a not uncommon combination. Further study would probably settle the diagnosis.

Dr. Williams agreed with the diagnosis in both cases.

ICHTHYOSIS WITH BULLOUS LESION (?). Presented by Dr. Levin.

A. G., a boy, aged 11, exhibited a dry skin which was first noticed when he was 2 years old. For the past seven summers he had suffered from sudden outbreaks of large bullae. The eruption was accompanied by malaise, weakness and loss of appetite. He came under observation about seven months ago, at which time he presented a generalized dry scaly skin with areas of thickening, scaling, dryness and discoloration. Scattered over the upper and lower extremities were numerous large ruptured and unruptured bullae. These disappeared under treatment, but recurred three months ago and again faded under treatment.

As presented, the boy exhibited a skin which was dry and scaly, the condition being most noticeable on the upper and lower extremities, where the skin was very dry, dirty gray in color, thickened, and covered with layers of large scales resembling fish skin.

HYPERHIDROSIS UNILATERALIS. Presented by Dr. Scheer.

Max B., 27 years of age, an operator, from the Mount Sinai Dispensary, had suffered for five years continuously from the condition as presented, that is, profuse perspiration on the right half of the face, extending from the forehead to the upper part of the neck, being most pronounced on the forehead and side of the nose. There were no cutaneous changes. At times he experienced a feeling of warmth on the right side of the face. The sweating was increased by emotional disturbance.

Neurologic Report: Careful examination showed no evidence of any organic disease of the central nervous system. There were, however, a few slight symptoms and signs pointing to irritation of the sympathetic nervous system. He had a slight exophthalmos and von Graefe's sign on both sides; the left pupil was slightly wider than the right; and the left palpebral fissure was slightly narrower than the right. These slight signs suggested the possibility of irritation of the cervical sympathetic nerve on the right side.

CASE FOR DIAGNOSIS. Presented by Dr. Williams.

C. H., a man, a driver, first noticed a "pimple" near the base of the little finger about two months ago. The disease gradually spread in spite of local treatment until it occupied an area about 2 inches in diameter on the back of the left hand. At times there has been a good deal of inflammatory reaction, with discharge of a purulent material. For the past two weeks the only treatment had been application of boric acid ointment, and under this treatment the inflammatory reaction had decreased.

The disease was most active at the border which formed a zone of papillomatous tissue which bled easily on friction. The lesions appeared to heal leaving a thin scar, which in turn showed papillomatous elevations. The Wassermann reaction was negative.

Cultures from a fragment of the border and smears from the same failed to show blastomyces, actinomyces or glanders bacilli. Histologic examination revealed only a healing process, without definite evidence of tuberculosis.

DISCUSSION

Dr. Highman said that the conditions which suggested themselves clinically were those mentioned by Dr. Williams; bromidism or iodidism should also be considered. The slight leaning in favor of tuberculosis verrucosa cutis which Dr. Williams had shown, seemed scarcely sustained clinically or otherwise. Histologically it is, as a rule, easy to find the tubercle bacilli in the section, and therefore that disease should be ruled out. The fact that blastomyces or other fungi were not found did not necessarily rule out such conditions. The suggestion of drug eruption should be more carefully considered, but further study would doubtless clear up the diagnosis.

Dr. Williams, in recapitulating the history, said that during presentation, for the first time, the man had confessed to having had a primary lesion many years ago; but the condition now shown did not suggest tertiary syphilis.

Dr. Pollitzer said that the rapid spread of the condition was against the diagnosis of tuberculosis verrucosa cutis. Against blastomycosis were the absence of focal abscesses and the failure to find the organism. He had seen cases of syphilis somewhat like this.

Dr. Abramowitz suggested the possibility of epidermophyton infection.

Dr. Williams said that after they had inquired into the possibility of drug eruption, the man stated that he had taken some doses of iodid, but that this was six weeks after the eruption had appeared—not before.

DERMATITIS HERPETIFORMIS WITH UNUSUAL BULLOUS FORMATION. Presented by Dr. Bechet.

William R., aged 64, from Dr. Trimble's service, stated that the eruption had been present for a year. There was a large number of drying vesiculobullous lesions of extensive distribution but with no apparent tendency to group. There was some pigmentation present, and he complained bitterly of pruritus. Judging from the involuting lesions, some of the bullae had been as large as a 25-cent piece.

TUBERCULOSIS CUTIS OF KNEE. Presented by Dr. Maloney for Dr. Rothwell.

A young man, 20 years old, born in Russia, had a condition which began seven months ago after an injury to the knee in climbing a pole. There was

a nodular lesion, purplish in color, circular in outline, 2½ inches in diameter, over the right patella. The mass was covered with dry, white, shining scales. It was probably three-eighths inch in depth, and seemed to be made up of three nodular infiltrations. There was some sign of verrucous change on its surface.

RECKLINGHAUSEN'S DISEASE. Presented by DR. HOWARD FOX.

A young man, a pedler, referred by the U. S. Public Health Service, had an eruption which, according to his statement, first appeared eight months ago. He presented a profuse amount of pigmentation, chiefly of the trunk, consisting of brownish freckles and a few irregularly shaped, dark brown, variously sized macules. The tumors, which were comparatively few in number, were scattered over the head and trunk and extremities. All of them were soft, a few of them having the typical bladder-like feeling on palpation. The patient was a small, but well developed, muscular person. He had left school at an early age and his mentality was below the average. There was a distinct right-sided exophthalmos said to have been present since birth.

PAPULOPUSTULAR SYPHILIS. Presented by DR. PAROUNAGIAN.

W. W., a man, aged 34, Irish, single, a doorman, whose last exposure occurred early in September, 1920, admitted no genital chancre and none was found. Three months before presentation in Boston he became drunk, and a sailor had intercourse with him per rectum. He has had hemorrhoids for the past three years. Early in November the hemorrhoids became much worse. Soon after he had headache followed by a corona veneris. About the middle of November he developed a rash on cheeks, neck and trunk, later involving the arms and upper part of the legs. The eruption was at first papular, later becoming pustular. When the eruption had been present two weeks, he was sent to the Willard Parker Hospital—Dec. 3, 1920—where a diagnosis of varicella was made. One week later the blood Wassermann reaction was ++++. The patient was given one neo-arsphenamin injection on December 17, and one intramuscular injection of mercury. He was discharged December 23, improved. He was admitted to the Bellevue Clinic December 23. He had no genital chancre. There was typical glandular enlargement. No throat lesions were present. There were moderate external hemorrhoids and a crusted rash varying from pea-sized to dime-sized lesions on the forehead, face, trunk and extremities. The Wassermann reaction, December 27, was negative. On December 23, 0.15 gm. of silver salvarsan were administered; on December 27, 0.20 gm.; December31, 0.20 gm., and on Jan. 3, 1921, 0.20 gm.

CASE FOR DIAGNOSIS. Presented by DR. HALPERIN.

F. H., from Dr. Trimble's service, aged 52, born in the United States, worked in lime and cement. In 1907, he began to have itching on both wrist and forearms, which spread to the neck. The skin on the affected parts was thickened and slightly scaly. After about two years ago the disease recurred and gradually assumed its present appearance.

DISCUSSION

DR. TRIMBLE said it was his impression that it was a case of chronic eczema.

DR. LEVIN said he had seen the patient at Cornell four months ago, at which time he showed a generalized eczema which he had thought was due to his occupation.

DR. WILLIAMS expressed the opinion that it was a case of chronic dermatitis, probably due to the man's occupation, and the great thickening was probably due to scratching.

MACULAR ATROPHY IN A SYPHILITIC. Presented by DR. LEVIN.

M. Z., a man, Russian by birth, contracted syphilis twenty-nine years ago. The eruption of the secondary stage disappeared and left the spots of atrophy which were present. While in the army he received twenty mercury inunctions. He complained of failing vision and symptoms referable to the central nervous system.

Scattered over the trunk and extremities there were numerous depressed, flush with the skin, and slightly elevated, round, oval, and irregular white spots. Some of these looked blown up, felt soft, and might be compressed. The epidermis over most of the spots retained the follicular markings.

The blood and spinal fluid showed positive biologic findings for syphilis. Examination of the fundi revealed partial optic atrophy. Microscopic examination of tissue from a spot showed a thinning of both the epidermis and corium. The stratum corneum was represented by only a few layers and stained poorly; the stratum granulosum was deficient, thinned, and missing in areas; the rete was also thinned, and its cells stained poorly, were flattened, broken, separated and showed vacuoles. The rete pegs were absent, and only here and there was there a suggestion of papillary bodies. The coil glands, the sebaceous glands, and the blood vessels were diminished in number, smaller than normal and degenerated. The connective tissue of the corium showed a separation and breaking up of the bundles of white fibers, and the elastic tissue fibers were diminished, broken, smaller and more irregularly curled than normal.

DR. LEVIN, in recapitulating the case, said that the patient had been presented previously in April, 1919; and it was then a question whether the lesions were scar tissue or atrophy. A microscopic examination had since been made, which showed that it was an atrophy of the skin.

TUBERCULOSIS OF THE BUTTOCK. Presented by DR. MALONEY.

E. J. H., a man, 48 years of age, born in the United States, had good health up to six years ago, when, according to his statement, he developed "a stricture of the rectum." Four years later he had an abscess of the perineum, which opened and later healed. One year ago an abscess formed on the right buttock, which opened, leaving the present condition. The lesion presented on the right buttock consisted of a brawny induration, with a sinus opening near the center. The whole area of induration was about the size of one's hand, with two small round ulcers at the upper part, and the scars of a healed ulceration at the lower part. Near the groin on the front of the thigh a livid lesion could be seen, with a twisted scar formation, apparently making an attempt at verrucous formation. No pathologic or surgical examination had yet been made.

MORPHEA GUTTATA. Presented by DR. HALPERIN.

Miss F. M., aged 18, born in the United States, from Dr. Trimble's service, whose family and past personal history were negative, had lesions which began in September, 1920, on both forearms at the same time. Shortly thereafter

similar lesions appeared on the back of neck, and new spots have been making their appearance on the forearms during the past two weeks. About three months ago, the patient began to have frequent attacks of cyanosis in the fingers of both hands, these attacks resembling closely those of Raynaud's disease.

MINNESOTA DERMATOLOGICAL SOCIETY

Regular Meeting, Feb. 2, 1921

C. D. FREEMAN, M.D., *President*

EPIDERMOPHYTOSIS, KERATOTIC TYPE. Presented by DR. IRVINE.

A woman, aged 64, presented a few months ago a thickened keratotic condition on the palms and soles. On the legs over the tibiae there were a few vesicles. The vesicles promptly disappeared under treatment with Whitfield's ointment. The keratotic condition resisted Whitfield's ointment but responded to a 40 per cent. salicylic acid plaster.

CASE FOR DIAGNOSIS. Presented by DR. FREEMAN.

A man, aged 28, presented an extensive eruption over the body. The condition began two years ago. The patient had been treated elsewhere for syphilis.

DISCUSSION

DR. MICHELSON stated that the predominating lesions were telangiectatic, and that the disease was not pityriasis lichenoides chronica or Majocchi's disease.

DR. BUTLER stated that at first glance the disease bore a striking resemblance to Brocq's disease, but this would not explain the new vessel formation. He considered that it was probably a case of Majocchi's disease.

DR. O'LEARY's first impression was that the condition was seborrhea corporis, but the seborrhea element was lacking. The lesions were not suggestive of Majocchi's disease, as they were not annular or atrophic.

DR. OLSON stated that the case impressed him as belonging to the Juliusberg type of parapsoriasis or pityriasis lichenoides chronica. There were present pityriasis rosea-like patches, numerous lichenoid papules, and the disease had pursued a chronic course. The distribution was typical. Scaling was slight or absent, but this was not especially uncommon, as many cases show slight scaling and, at times, scaling is entirely absent. The apparent telangiectases, he believed, were small punctate hemorrhages due to rubbing to relieve itching.

DR. IRVINE believed that the case was one of Majocchi's disease, even though the extremities were not involved. Majocchi's disease at times involves the body. Dr. Irvine stated that some of the lesions were annular and that numerous telangiectasia were present.

ERYTHEMA INDURATUM. Presented by DR. BUTLER.

A rather stout young lady showed typical lesions of erythema induratum on the calves and enlarged cervical glands. An interesting feature was that

the patient had been elsewhere considered as an object lesson of the fallacy of the Wassermann reaction, as there had been two negative Wassermann reports in spite of the presumably manifest syphilitic ulcerations on the legs.

DISCUSSION

DR. OLSON requested information as to the prevalence of erythema induratum in males, as all the cases presented to the society had been in females.

DR. O'LEARY stated that 10 per cent. of the fifty cases seen at the Mayo Clinic were in males. Favorable results with arsphenamin were reported, the glands as well as the skin lesions responding to this treatment. Recurrences occurred especially in the months of March and April. The removal of enlarged tonsils was of considerable importance.

SYPHILIS OF THE EPIDIDYMIS (WITH DISCHARGING SINUSES). Presented by DR. THOMAS.

A man, aged 30, was shown at a previous meeting a month ago. At that time he showed an enlarged left epididymis, with discharging sinuses. This condition had existed for three years. The testicle was not affected. The Wassermann reaction was doubtful. The left epididymis was normal. At the previous meeting the members were about evenly divided as to the diagnosis of syphilis or tuberculosis. After a few injections of arsphenamin, the patient had made a complete recovery.

ROENTGEN-RAY ALOPECIA. Presented by DR. BUTLER.

A young woman before coming to Dr. Butler had had a picture of a sinus taken in a dental office. Following the exposure to the roentgen ray there was complete alopecia of a large area over the occiput. The patient showed alopecia and some atrophy of the skin. There was some new growth of hair.

ALOPECIA AREATA. Presented by DR. MICHELSON.

A young man, a syphilitic patient under treatment, presented areas of alopecia on the scalp, and the loss of all the eyelashes of the right upper eyelid. The eyelashes on the other lids were normal.

SYPHILITIC REINFECTION. Presented by DR. ARMSTRONG.

A young man, aged 20, appeared at the University Dispensary, Minneapolis, on July 16, 1919, with an "initial lesion just back of the glans penis, right inguinal glands enlarged." No eruption was present, and the Wassermann reaction was positive. He received thirteen injections of arsphenamin and two injections of mercury salicylate during the next eight months. On July 8, 1920, he appeared at the St. Paul Dispensary, requesting that treatment be continued. He was given 1.5 grains of mercury salicylate; this amount was reduced to 1 grain on July 15, 1920, and to 0.75 grain of mercury salicylate on July 29, 1920. The patient suffered from salivation.

On Aug. 8, 1920, he reappeared at the dispensary with a typical Hunterian chancre on the foreskin. He stated that he had noticed the sore eight days previously. The glands in both inguinal regions were enlarged. Serum from the chancre showed abundant *Spirochaetae pallidae*, and the blood test was positive.

The history was of interest, not alone because it showed a second infection with a presumptive cure of the first infection, but also because the patient was under the influence of mercury during the entire incubation period of the second initial lesion. In other words, mercury is not powerful enough or rapid enough in its action to stop or retard the evolution of the disease during the incubation period.

DERMATITIS DYSMENORRHOICA? Presented by DR. MICHELSON.

Mrs. E., aged 43, a former medical missionary in India, presented a symmetrical eruption on the hands and face. This eruption appeared only at the time of menstruation. She began to menstruate at the age of 14, and had always been regular until the past twelve years when her periods had occurred every three and a half weeks. She never noticed any cutaneous eruption at the time of menstruation until seven years ago, However, ever since she was a small girl, there was some dryness and scaling at the time of menstruation. Several years ago she noticed that three or four days before menstruation her face would be covered with purplish red spots varying in size from that of a quarter to that of a dollar. They were dry, burned considerably, and as menstruation proceeded would burn more and be covered with a fine scale. Her hands during the past three years had taken part in this phenomenon.

She had one child four years ago. The baby was born at full term, and during the period of gestation she suffered from edema, but during that time she did not have the recurring attacks of skin trouble. The baby died at the age of 4 months and for three months after this she did not menstruate. During that time she was free from skin trouble. Several months ago she ceased menstruation for no known reason and consulted Dr. Olga Hanson, who put her on corpus luteum tablets, and menstruation was reestablished. During the period of cessation her monthly attacks of skin trouble did not occur. Numerous food sensitization tests were negative. There was nothing abnormal revealed in the urinary, blood or gynecologic examinations.

The patient presented a polymorphous eruption of the face, which had gone through the various stages of burning, erythema, slight vesiculation, with subsequent thickening and scale formation. The areas on the hands persisted throughout the month and presented the characters of a chronic fissuring eczema.

DISCUSSION

DR. OLSON called attention to the obvious hysteria present in this patient, and was inclined to believe that these cases belonged to the factitious dermatitis group. The lesions in both dermatitis dysmenorrhoica and factitious dermatitis are bizarre. The staging of the eruption at the time of menstruation is a startling feature that would appeal to many of these hysterical patients.

Book Review

SYPHILIS IN GENERAL PRACTICE WITH SPECIAL REFERENCE TO THE TROPICS. K. K. CHATTERJI, with an introduction by W. D. Sutherland. Butterwith & Co., Calcutta, India.

Chatterji has collected information regarding the protean manifestations of syphilis from many authorities, and has amplified it from his own practice. His experience taught him that the manifestations which the disease undergoes in the tropics provide a great field for research. He believes that it is generally admitted that in the tropics (he speaks for India), syphilis manifests itself more in the lesions of the skin, mucous membranes, and in ulcers (tropical ulcers) than in typical tertiary lesions or parasyphilitic conditions. It has been suggested that various skin lesions, described under the name of tropical phagedenia or tropical ulcer, are really manifestations of syphilis. It is generally accepted that tertiary ulceration in the tropics assumes a malignancy which is not so common in cold climates. Many of the tropical conditions are of protozoal origin, for example, yaws, gangosa, and dermal leishmaniasis (oriental sore), and as such they may give positive Wassermann reactions. Many authors have found spirochetes and other organisms in tropical ulcers, but their morphology is different from that of *Spirochaeta pallida*.

For the prevention of the spread of syphilis, Chatterji relies much on moral education. The early marriage system of India is little better able to insure prophylaxis than the later marriage system of other lands, hence moral education will fail to do much, according to Sutherland, unless those who come under its influence are taught to use active measures of disinfection immediately before and immediately after exposure to contagion.

Chatterji has experimented to good advantage with the ethyl esters margosis (of the Nim or margosi tree) in therapy.

The book contains 382 pages, and is well printed. There are fifty-six plates, and the subjects are well chosen and interesting, but photographs could have been substituted to advantage.

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